LIBRARY OF CONGRESS
COPYRIGHT
MAY 27 1889
WASHINGTON

6654

PRICE 15 CENTS.

MAY 25, 1889.

THE AMERICAN ARCHITECT AND BUILDING NEWS

VOL. XXV. REGULAR EDITION NO. 700.

ARCHITECTVRE

ENGINEERING

DECORATION

CONSTRVCTION

TICKNOR & COMPANY

BOSTON MASS.

CONTENTS.

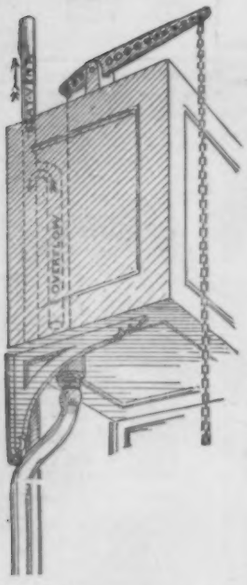
Editorial Summary.
A Foreigner's View of American Architecture.
Malaria.—I.
Italian Cities. VII.—Verona.—II.
Auguste Rodin.—VIII.
Communications.
Notes and Clippings.
Trade Surveys.

ILLUSTRATIONS.

St. Peter's Episcopal Church, Albany, N. Y.
(Gelatine Print issued only with Imperial Edition.)
King Memorial Decoration, St. Paul's Church, Augusta, Ga.
Views in Verona, Italy.
Competitive Design for Church.
Design for a Country House.

THE

SANITAS WATER CLOSET



The "SANITAS" PATENT WATER CLOSET has the simplicity of the Short Hopper, all the Sanitary advantages and conveniences of the best improved modern closets, and others peculiar to itself in being antisiphonic, quick-acting, self-sealing, free from spattering or waste of water, and, when properly set, almost noiseless in operation.

The supply-pipe between the cistern and the closet stands permanently full of water, and, discharging below the level of the standing water in the bowl, the action is instantaneous and the noise of flushing is deadened, so that when properly set and with the cover down and toilet-room door closed, no sound can be heard from without. The water is held in the supply-pipe by atmospheric pressure and will instantly restore the trap seal should it at any time be lowered by evaporation or siphonage.

SANITAS MANUFACTURING CO.,

MAIN OFFICE: 207 TREMONT STREET, BOSTON, MASS.

Branch Offices: 64 Gold Street, New York, N. Y. 229 Walnut Street, Cincinnati, O. 47 to 49 Dearborn Street, Chicago, Ill. 316 Chestnut Street, St. Louis, Mo. Sole Agents for California: Arnold & Co., 40 California Street, San Francisco. Sole Agent for Canada: O. Higman, 236 Sparks Street, Ottawa.

THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. XXV. Copyright, 1889, by TICKNOR & COMPANY, Boston, Mass. No. 700.

MAY 25, 1889.

Entered at the Post-Office at Boston as second-class matter.

CONTENTS

SUMMARY: —
The *American Architect* Travelling-Scholarship. — The New York Cathedral Competition. — A Workingmen's Excursion to the Paris Exhibition. — M. Charles Garnier on Sign-boards. — The History of Habitations at the Paris Exhibition. — Foreigners' Views of American Architecture. — The Hudson River Tunnel. — Fire on Shipboard extinguished with Steam. — A Rat and a Water-meter. — The Tower of Pisa as a Lottery Prize. — An Opportunity to secure a Statue. . 241
A FOREIGNER'S VIEW OF AMERICAN ARCHITECTURE. 243
MALARIA. — I. 244
ILLUSTRATIONS: —
St. Peter's Episcopal Church, Albany, N. Y. — King Memorial Decoration, St. Paul's Church, Augusta, Ga. — Views in Verona, Italy. — Competitive Design for Church, Clergy-house and Schools for Trinity Corporation, New York, N. Y. — Design for a Country House. 247
ITALIAN CITIES. — VII. — VERONA — II. 247
AUGUSTE RODIN. — VIII. 249
COMMUNICATIONS: —
Licensing Architects in Texas. — The Iowa Soldiers' Monument. 251
NOTES AND CLIPPINGS. 251
TRADE SURVEYS. 252

THE list of entries for the examination for the *American Architect* Travelling-Scholarship will close June 1, and during the ensuing week contestants will receive their preliminary papers by mail.

THE preliminary competition for the New York Cathedral has ended in the selection of four designs, the authors of which are to take part in a final competition, to be decided about the first of November next, unless it should occur to the Trustees that this gives altogether too short a time for the elaboration of so important a work. The authors of the four selected designs are Messrs. Potter & Robertson, William Halsey Wood, Heins & La Farge and George Martin Huss, with whom was associated Mr. John H. Buck. Messrs. Potter & Robertson have long been known in the profession, and Mr. Buck is an architect of much experience. All the others are comparatively young men, but with an excellent reputation among their brother architects. Mr. La Farge, of Heins & La Farge, is the son of the painter.

WE have received a circular from the "Scripps League," calling our attention to an expedition of workingmen to the Paris Exhibition, which the League is preparing at its own expense. Never having heard before of the Scripps League, we are unable to give particulars as to the character of the persons who compose it, but it would seem to be a sort of association of Western newspapers, whose managers have seen an opportunity for combining philanthropy and business by sending out fifty men, thoroughly skilled in their respective trades, and capable of writing intelligibly about their experiences, to compare foreign machinery and processes with our own, and give their fellow-citizens and the newspapers that pay their expenses the benefit of their observations. If this is really the nature of the enterprise, or, still more, if it is the result of a movement still more purely benevolent, we are glad to wish it all possible success. At the time of the last exhibition in Paris, the British Government sent over a number of workingmen of special intelligence to make observations similar to those which the Scripps expedition has in mind, and the published letters of these workingmen were among the most interesting documents that appeared in relation to the exhibition. The circular sent us says that steps have already been taken to select men to go, and the managers of the affair desire that organizations of the mechanical trades should correspond with them in regard to the selection of others. Further information is to be had from the directors of the Scripps League Paris Expedition, Detroit, Mich.

M. CHARLES GARNIER wrote some time ago one of his half-serious essays on the disfigurement of city streets by hand-bills and painted signs, which has a great deal of truth and reason in it, and M. Planat has done his readers a service by reproducing it in *La Construction Moderns*. M. Garnier complains that he cannot go anywhere in Paris without having his enjoyment of the picturesqueness and architectural beauty of the streets nearly destroyed by the apparition of some huge sign or rude picture, so enormous as to take away the scale of the more worthy objects near it. As he says, no sooner does he begin to admire the perfect proportion and delicate detail of some beautiful front, than he sees on the side-wall of the adjoining house a representation of a gray overcoat, the Redingote Grise so familiar all over Paris, large enough to clothe the Colossus of Rhodes, which immediately destroys the effects he was admiring. The graceful windows become mere mouse-holes, the carefully studied string-courses and cornices disappear, and the harshness of the colors of the signs spoils the tone of the whole view. Most people, as he says, pay no attention to these things, but he cannot see why the public that does care for them has not a right to have its feelings respected. No one, as yet, would venture to go into the Louvre, and paste his little advertisement on the nose of the "Vièrge à la Chaise," or would even dare to hang a sign-board on the tail of Charlemagne's bronze horse in front of Nôtre Dame, yet the sign-painter does not hesitate to disfigure the vicinity of the Sainte Chapelle with his creations, and no architect has hitherto cared to complain in public. With us the practice of painting or pasting signs on every vacant surface is so inveterate that we can hardly conceive of a city view without them, but while it must be acknowledged that our architecture need fear less injury from such causes than that of Paris, we can console ourselves by thinking that our signs are much less objectionable than those of Paris. It is possible that the unrestricted competition of the composers of advertisements here has been the cause of the display of more taste in their manufacture than would otherwise have been shown; but, whatever the cause may be, it is certain that American posters and other things of the sort are superior to those seen anywhere else in the world. When we were first in Paris, many years ago, there was an exhibition of American posters and hand-bills going on somewhere in the city, which was at least considered interesting enough to be advertised. Since that period, the art of designing theatre hand-bills and soap advertisements has made great advances in this country, while it has stood still, apparently, in Paris, and if the exhibition were to be repeated, we imagine that it would attract no small attention, even from such artists as M. Garnier himself. Perhaps, in the present stage of the art, it might not be a bad idea for architects to interest themselves in such matters a little more than they do. It is getting to be quite common for architects to design the sign-boards which are to be placed on the buildings erected under their care, and the late Mr. Godwin, in England, gained a high reputation by designing the costumes and stage-settings for many successful plays. By combining these two things, and arranging to show a play attractively to the outside world, as well as to the audience, a clever architect might be of great service to a manager. Of course an artist, and a good one, ought to draw and color the figures to be displayed, but an architect might with much advantage arrange the surroundings of the picture to be displayed, so as to give it the utmost value and effect, and might often suggest decorative treatments of the composition or the color, which would make them far more attractive.

AMONG the curiosities of the Paris Exhibition, not the least interesting will be M. Garnier's "History of Habitation." This consists of a row of dwellings, beginning with a cave formed of stones, and overgrown with weeds and vines, followed by a lake-dwelling, restored from the remains found in the Swiss lakes, and this by an Egyptian habitation of the type of those existing in the period of the Pharaohs. Then come Assyrian, Phœnician and Hebrew houses, followed by Greek and Roman ones, and so on, through those of the Middle Ages, down to our own time. In order to utilize the buildings, all the dwellings except the caves and the Swiss lake-cabins, about whose inhabitants we know absolutely nothing,

are tenanted by people as nearly related to the real inhabitants as possible, dressed in costumes accurately studied, and surrounded by furniture of the style of the period to which the buildings are supposed to belong. In some cases the occupants are allowed to carry on a small business. Thus the inhabitants of the Etruscan house are permitted to dispense refreshments, which do not necessarily have the flavor of the eighth century B. C.; and a real Persian café occupies the Persian house, and is carried on by real Persians, dressed in their ancient costume, with Persian singers and musicians to divert the guests. In the Roman house is a glass-blowing establishment; the house of the Slavonic peasants is devoted to distilling rose-water from the roses of Kesanlik; and the Russians who live in their cabin make the characteristic wooden goods of Russia for sale among the visitors. Each house, by the skill of the Parisian gardeners, is surrounded by the plants of the country to which it is supposed to belong. The Egyptian house is buried in papyrus; cedars of Lebanon surround the Hebrew dwelling; the Japanese house is placed in the midst of a garden of cydonias, hortensias and other Japanese shrubs; and the Chinese one is hedged with bamboos, tea-plants, azaleas and fan-palms.

WE are gradually becoming wonted to having foreigners, especially Frenchmen, write amiable and appreciative criticisms on the work that our architects are doing. Other foreign critics, and particularly English writers, have a way of discussing the matter *de haut en bas*, so as to leave rather more sting than balm behind; but in another column will be found a review of our present work from a German standpoint, the general trend of which is more in line with French than English comment on American architecture. Not only do the French take note of our artistic progress, but the publication of a translation of our articles on "Builders' Hardware," which is now appearing in the pages of our estimable contemporary, *La Construction Moderne*, shows that they also appreciate the practical constructive ingenuity of Americans at a proper value. The publication of these articles in America and in France, supported, as they probably will be, by some exhibits at Paris, should make this a red-letter year for makers of builders' hardware in this country.

WORK has been recommenced upon the Hudson River tunnel, the necessary money having been raised in England, by a loan of nearly three million dollars. A commission of English engineers was sent out to examine the plans for the tunnel, and to inspect the work actually done on the ground, and their report, instead of being very unfavorable, as was at first reported, turns out to have been very favorable — so much so, in fact, that the same engineers are said to have made copious notes of the scheme, with a view to repeating the construction on a great scale under the River Ganges. Some of the English engineers, are, we believe, to stay and see the work carried out, and the force now in the tunnel will soon be increased, and the undertaking pushed rapidly to completion.

FIRE AND WATER gives a curious account of a fire which took place on an English steamer, on its way to Rio Janeiro. When the ship was still twenty-three hundred miles from its destination, the cargo was discovered to be on fire. All the ordinary means for extinguishing the fire were employed in vain, and the boats were got ready and provisioned for a long voyage. Having taken this precaution, the captain, a man named Thompson, who deserves to be remembered for his courage and ingenuity, persuaded the crew to remain on the ship, and keep on at full speed toward Brazil. The fire continued to spread through the cargo, and the deck and sides of the vessel became in places, red-hot, so that the sailors could only get about the ship by spreading sails over the deck, and keeping them constantly wet. Holes were then made in the deck, and steam, under high pressure, injected from a donkey-boiler. This application proved surprisingly successful, and after one night's work the fire was so much reduced that it was at first believed to have been entirely subdued. To finish it, water was pumped into the hold during the whole of the next day, but instead of quenching what remained of the fire, it seems to have rekindled, or at least increased it, and in twenty-four hours the deck and sides in the vicinity of the conflagration were again red-hot. Again steam was injected, and again the fire died away, and the temperature of the deck fell. It was then discovered that the coal was on fire in the bunkers on the port side, and it was hopeless to do anything more except to remove the coal. This was done as long as the men could work in the bunkers, and such of the cargo as could be reached was taken out of reach of the fire. Finally, after the crew had fought the fire for twelve days, the ship reached Rio Janeiro, with all its crew safe and sound except the captain, who had been badly burned on the leg in fighting the flames, and is to be consoled by the presentation of a medal from the Emperor, in recognition of his bravery and skill. The lesson which architects will draw from the story is that for fighting a fire in a confined place, steam appears to be far more effective than water. In fact, in this case the application of water seems to have increased the fire, in a way which can only be explained by knowing more about the character of the cargo than can be learned from the telegraphic reports.

A MANUFACTURING firm in Milwaukee had an experience recently with a rat, which is instructive. Noticing that the bills for water delivered through the meter were unusually large, the managers ordered an investigation, and at last discovered that the lead supply-pipe in one place ran in contact with a waste-pipe, also of lead. A rat, who frequented the waste-pipe, happening to be thirsty, and divining, by the curious instinct peculiar to such animals, the proximity of a supply of water, had gnawed a hole through the walls of both pipes, in order to get a drink. He succeeded in getting his drink, but omitted to close the hole again, and the water continued to flow through the meter, and out again through the waste-pipe, until the investigation revealed what had been done. Possibly some architect, who has had experience with rats, may do the profession the service of writing an essay on the subject of catching them, as well as of preventing them from doing mischief. We have heard it said recently that a rat will not gnaw a hemlock board, and that a grain-bin in a stable, if made of hemlock, or lined with it, is as safe against rats as if it were lined with galvanized iron. Whether this is so we cannot say, but some one ought to know about the matter, and if that person will come forward with his information, he will deserve the thanks of the building community.

EVERY one may not know that the renowned Leaning Tower of Pisa has been set up as merchandise by the muncipality, and, in order to bring the highest possible price, has been made the capital prize of a lottery, which is to be drawn at some period unknown to us. According to the *Wiener Bauindustrie-Zeitung*, from which we gather this information, the city of Pisa has spent so much money on improvements that it is practically bankrupt, and its creditors are making themselves quite disagreeable by the urgency of their demands. In this strait, and, more particularly, to prevent the town-hall from being seized, the city government has bethought itself of one of its pieces of antiquity, and hopes to get enough for the tower to put off its duns for a time. Whether the tickets are being eagerly taken or not we do not hear. A native might, we suppose, make a certain income out of the prize by charging an admission-fee to visitors, but a foreigner would be better off without it than with it.

WHERE is a chance, perhaps, for one of our cities to get a first-rate statue, compared with most American statues, at a small price. Many people, especially those who appreciate the Parisian *etablissements de bouillon*, will remember the statue of Joan of Arc, which ornaments the middle of the little Place des Pyramides, opposite one of M. Duval's principal establishments. This statue, the work of Fremiet, has never been quite satisfactory to the artist's friends, and he has, as a consequence of a long course of badgering, determined to replace it with another, at his own expense. The model for the new statue has already been made, and is to be shown in this year's *Salon;* and, at the close of the exhibition, the sculptor intends to have it cast in bronze and put in place of the present one. Now, as any of Fremiet's statues, whether their author or his friends like them or not, would be a great deal better than most of the sculpture that does duty in America, and the "Joan of Arc," which will be a mere load on the artist's hands, could probably be bought for a low price, it certainly seems as if some of the rich citizens of some aspiring city might do their fellow-citizens a great service by securing it without delay.

A FOREIGNER'S VIEW OF AMERICAN ARCHITECTURE.[1]

PART OF MONUMENT AT KAISERSLAUTERN TO THE ILLUSTRATE HOTEL TAITT

WHEN the conditions are considered under which the art of building is exercised in this country, then a number of favorable circumstances will be noticed on one side that have not only aided in reaching the present high stage of development, but that carry in themselves promise of a still greater future. But on the other side we cannot fail to notice a number of obstacles and retarding influences, which, for the time being, will prevent America from becoming the birthplace of that future style of architecture the peculiar and unique beauty of which is supposed by some to be destined to overshadow everything the old world has ever produced during the long course of its civilization.

Foremost among the favorable circumstances doubtless is the great wealth of the country and its political power and independence. The absence of jealous and quarrelsome neighbors and the traditional disinclination of the American Government against meddlesome and adventurous interference with the affairs of others furnish a safe basis for lasting peace. The entire energy of the people is therefore devoted to win and utilize the inexhaustible treasures of the soil and a competitive progress is thus caused, the astonishing results of which are the subject of world-wide admiration. The enormous wealth accumulated in this way enables governments, municipal administrations, corporations and single individuals to devote to building purposes amounts which exceed the greatest donations ever made for the same purpose by the princes, the republics or the churches of the old world.

In the buildings put up by the federal government the endeavor is noticed to give expression to the majesty of the highest power resting in the people itself. States and cities vie with each other to give a monumental and imposing form to the structures which are destined to harbor their legislative bodies, their administrations, their courts of justice; the great industrial, mercantile and railroad corporations raise mighty buildings expressive of their sphere of action; wealthy citizens and families enter into a noble competition in founding and lavishly endowing churches, universities, libraries, schools, museums, hospitals and other establishments of public use, and in all these cases ample means are furnished to create something great and lasting. The characteristic disfavor with which the typical American regards anything small or petty on no occasion shows itself more than in his willingness to *give* unstintedly in order to *obtain* something standard and sterling.

In a country like this, filled with the restless spirit of enterprise, the architect will be called upon to solve problems of the most interesting kind, sometimes wholly unique, such as, for instance, the construction of an entire town, which was completed in the vicinity of Chicago by George Pullman inside of three years. Such circumstances coupled with the independence of mental grasp and ideas, that is produced by the all pervading liberty of action and movement, will naturally tend to heighten the inventive and the creative power of those to whom the execution of such extraordinary projects is entrusted. They will commence their task, unlike the masters of the old world, free from those bonds in which traditions and impressions of a great past have held the imagination since the days of youth. Thus they will produce something new and unique, which may bear the stamp of creative genius.

Wherever there is light there must also be shadow, — this old rule holds good here as elsewhere. The very same circumstances, which favor the invention of new forms also carry in themselves the danger of arbitrary and whimsical ideas taking the place of the beautiful and the practical. The eternal laws of beauty, which are recognized and understood only after a careful study of the best monuments of all ages are easily lost sight of by those, who, without having gone through a thorough course of training, have commenced in early years to work independently. Similar opinions are evidently gaining ground among American architects themselves; the Western Association of Architects, for instance, has resolved that the right of architectural practice should be made dependant on a State examination.

Without at present entering on questions of style, I believe that the great and undisputed advantages of the best specimens of modern architecture in this country mainly consist in the happy distribution of the masses, in the artistic treatment of wall-spaces, in the predominance of gravity of expression, and above all in the effective crowning of buildings, in the way in which their upper parts set off against the air. I do not believe that these American creations can be excelled as regards profile and general impression from a distant point-of-view. Another point that deserves commendation is the sterling solidity with which elevations are constructed. With rare exceptions, there is nothing false, everything is genuine and presents its natural appearance. The experienced observer will regard with especial interest and satisfaction the excellent treatment of wall-spaces in natural stone material, the striking effect obtained by finishing the surfaces of the freestone in their natural grain, sometimes rough and heavy, sometimes finer, and finally, in well considered contrast thereto the charred and polished surfaces which set forth to the fullest advantage the color and the grain of the various kinds of granite, marble and sandstone, of which this country possesses such a marvellous abundance.

An equally healthy and novel treatment we find in the better specimens of brick buildings and in the application of effective terra-cotta ornaments. The interiors show the same sterling quality of material; in the flooring, the wainscotting and panelling, be it of stone, or of glazed material, or of wood we observe an excellent understanding of forms and colors, which knows how to attain the finest effects by utilizing all available means, such as checker-work, colored-stones, metal or glass.

It appears to me, however, that a certain contrast exists between the beautiful exterior, which gives evidence of so much talent, and the invention of the ground plan. Clearness and beauty of the latter, which certainly should be among the principal aims of the architect, do not seem to me to receive sufficiently weighty consideration; solutions are accepted, which might be improved upon by careful study and ripe experience. Correct proportions in length and width, alternation in size and form of plans, proper expression of the relative importance of each room, imposing spans for stairways uniting in themselves the requirements of utility and beauty, in short all those elements of invention which determine the impression of space in architecture, do not appear to me to be considered as much here as they are in the monumental structures of Europe. Sometimes even, the first practical requirements of air and light are not sufficiently considered.

Casting a glance now at the ecclesiastic architecture of the United States, we have to remember, that it cannot be measured with the same scale which is applied to the most perfect cathedrals of the old world; but here we must bear in mind the youth of the country, the great number of congregations and sects, as well as the fact that the means for the erection of churches are raised by the congregations themselves, without government aid. When all this is duly considered, then we can only judge favorably of what has been done in this field. From the wealthy and large cities down to the smaller townships, nearly every one possesses a number of churches, which if not grand and imposing, yet present a harmonious and pleasing appearance. The style of most of them is derived from mediæval traditions, but frequently happy and original novelties are found and the general impression of nearly all of them is beautified by nestling wall-creepers, or by surrounding groups of trees, shrubbery, etc.

According to votes collected by the *American Architect*, Trinity Church, in Boston, is looked upon as the finest building of its kind in the United States. This church was built by Gambrel & Richardson and doubtless is an important as well as an instructive structure, because it is independent of all traditions. Contemporaneous opinions on such a work will always be more or less prejudiced and final judgment in this case must therefore be left to posterity. From a point-of-view more free than ours, she will decide whether the more wordly features of this architecture will satisfy future generations, and will create the same impression of sacred mystery that is found in the purely ecclesiastic forms of the old Christian, the Romanic, the Gothic, and the Renaissance periods; again, whether this interior, which is devoid of the imposing crowning of a vault, in majesty and grandeur approaches the ideal as nearly as do the venerable works of the past.

Judging from such a point-of-view, it is probable that many will prefer to the Boston Church, the New York Trinity Church, built by Mr. Upjohn. From Trinity as well as from Grace Church, which forms a beautiful group in connection with its rectory, a friendly spirit seems to breath into the hastening and nervous life of Broadway. Both are works on which the observer's eye rests with undivided satisfaction; are they less perfect or less important because they speak to us in a language of forms that has become well-known and dear to us through history and tradition?

It would evince a lack of correct judgment not to share the enthusiasm, with which Americans regard their Capitol at Washington, especially, when it is remembered, that the building was not constructed at once, but was gradually made what it is to-day: seven architects share the honor successively of having contributed to its completion. From its wisely selected site, its beautiful contours, crowned by the effectively moulded cupola, shine far into the country, dominating the entire landscape. In its general character it unites the refinement and the magnificence peculiar to the forms of Renaissance, but it is a matter of regret that the front elevation is turned away from the city. In view of its manifold beauties, however, this defect is easily overlooked, as well as the further ones of the ground plan, with its intricate corridors and its modest stairways, also the fact that the cupola with its columns and beams is not as it seems a solid stone construction but one of iron.

Among the numerous great and magnificent buildings put up by States and cities for administrative purpose, the Connecticut Capitol, in Hartford, appears to me to be an especially meritorious work. The Albany Capitol, notwithstanding many external beauties and excellent interior details, cannot be rated equally high as regards

[1] By C. Hinckeldeyn, former Technical Attaché to the German Legation at Washington.

novelty of invention and general proportions; neither is it to be expected that the present favorable opinion of the majority on the Philadelphia City-hall, will be indorsed by posterity. The much-contested selection of the site was decided by public vote, and the architect in this respect had to make the best of given and inalterable conditions. But, it having been decided to erect the building on the crossing of two main thoroughfares, would it not have been natural to construct great and imposing openings for them, instead of the insignificant entries in which they are now lost to sight? Is it not a non-artistic exaggeration to develop from out of this building a tower rising to the enormous height of 535 feet? Is it too late to hope that, at least, the barbarous idea may be abandoned of crowning this dizzy height with the venerable figure of William Penn?

The public buildings subject to the Treasury Department (court-houses, post-offices and revenue buildings) evince an unmistakable family-likeness and, notwithstanding excellent execution, a lack of inventive talent, which, however, is readily understood by one who knows the system according to which these structures were designed. The incumbents of the position of Supervising Architect, in their annual reports during the last ten years, have constantly called attention to the difficulty of giving an individual appearance to buildings in which the practical requirements are alike. This difficulty cannot be overcome by a single individual moving in the routine of office. Why, for instance, is the impression of the New York Post-office so unsatisfactory a one? Is it not the lack of contrast in the various stories, the subdivision of all wall-surfaces by means of columns arranged on a small and petty scale, and the non-artistic details, noticeable, for instance, in the absence of any swelling of the cylindrical columns?

If this is compared with the forms invented by a talented artist for a similar public building, for instance, the Jefferson Market Court-house, built by Mr. Withers, then it must be conceded, that success as failure is not a question of the problem itself, but merely of the way in which its various features are grasped.

The main buildings of great railroad corporations may be looked upon as a group in which modern architectural ideas appear most expressively, a number of remarkable examples of which are found in the great cities. The depots of the Pennsylvania Railroad in Philadelphia, of the Boston & Albany Road in Boston, the Dearborn depot in Chicago, and the Grand Central depot in New York, give striking evidence of the ability with which their architects have raised these buildings beyond and above the mere requirements of practical use to the sphere of monumental importance.

Equal appreciation is doubtless due to the numerous buildings devoted to scientific purposes, the universities, colleges and libraries, as well as to the institutions of charity and hospitals. Whose heart would not be filled with genuine satisfaction on passing through the manifold buildings of venerable Harvard University; who would not admire the grand institution of the Johns Hopkins Hospital, the pride of Baltimore? And surely every one, who ever crossed the Potomac from Washington to Arlington, will retain the memory of the impression made by Georgetown College, high above, with its effective forms so grave and yet so animated.

A decided disappointment, however, is experienced on turning to the American institutions for public amusement. In the erection of theatres, for instance, the instinct of business and of utility on the part of the owners, has compelled the architects to depart farther from compliance with artistic demands than in any other field. The greater number of theatres are hidden behind dwelling or business fronts. These are, therefore, *a priori*, not to be counted among works of art; but the true character of a temple of art has rarely been developed, even in those cases where circumstances permitted the erection of an independent structure, standing free from its surroundings. It will be conceded, for instance, that the exterior of the New York Metropolitan Opera-house does not betray in any way its destination, although the means at disposal were ample. In the interior there is no lofty and spacious hall, no magnificent stairway, and the auditorium, which is reached through low and insignificant ante-rooms, impresses us as barren and cold.

The interior of the Casino, opposite to the foregoing, doubtless is of a high artistic order. Original and varied forms and magnificence of colors unite in impressing the visitor, and carrying his mind into the sphere of imagination. But it seems a somewhat strange whim on the part of the architects, Messrs. Kimball & Wisedell, to select for the front of a New York theatre the forms of Moresque architecture, the massive wall-spaces and small openings of which are adapted alike for defensive purposes and for affording shelter against the rays of the sun in a hot climate. Again, notwithstanding the assurance that everything is fireproof, an uneasy feeling is created when ascending those winding stairs by the thought of what might be the result of a panic when everybody rushes towards the exits.

One of the most horrible examples in this line is found in the new Opera-house, at Chicago, which really is nothing but an immense red brick box of the most incredible forms and proportions. On the other hand, I would name as works deserving all praise, the Academies of Music in Philadelphia and Baltimore: in the latter the architect, Mr. Neilson, has succeeded with moderate means in creating a simple but characteristic exterior, an excellently arranged ground plan and a pleasing interior.

The mighty buildings devoted to business purposes are more and more becoming a decisive element in the appearance of the large cities of this country. The mere technical achievements found in them, may doubtless be pronounced to contain the sum and the substance of all modern constructive possibilities and knowledge. Only a minority of them, however, will stand an æsthetic scrutiny equally well. I will depart from the rule and only review the favorable exceptions. I believe comparison to be admissible between the proud Palazzo Farnese, towering with its grand horizontal lines above the multitude of houses of Rome, and the Produce Exchange dominating in the picture of lower New York. Nay, more, the latter appears to me even more impressive than the first named, through the addition of the proud tower, which, with its calm and beautiful contour and its effective composition, forms a far-visible characteristic feature of New York. The architect, Mr. Post, a most gifted master, in this building has shown the meaning of true and genuine effects in architecture. In this simple work you do not find any weak results, no playful divisions, no meaningless ornaments; but you find grave and grand wall-spaces in noble proportions, and decisive contrasts in the various stories, everything true, natural, practical and perfect in its entirety — with perhaps the single exception that the main entrances are not sufficiently characterized, and that the form and color of the small projecting granite supports, in a measure, disturb the harmony of the lower portion.

A second remarkable example is the well-known Sloane Building, on Broadway. Its purpose could scarcely have been expressed better than has here been done by its architect, Mr. Wheeler Smith. In the treatment of the pillars, in the arrangement of the large light-openings, in the placing of the intermediate columns of iron; in short, in the composition of the whole, as well as of the details, a true artistic spirit, confident of success, is manifested.

Now, very different, however, are the latest works out West, notably those of Mr. Beman, the gifted architect of Pullman City. In the treatment of the freestone at Studebaker Bros. manufactory building, in Chicago, and at the Northwestern Life Insurance Company Building, in Milwaukee, a transition appears to an affected aboriginality, not to say brutality, and the various members, forms and proportions are handled in a way that can scarcely be pronounced a progressive one. The same is true of the almost grotesque bank-buildings on Chestnut Street, Philadelphia, in the forms of which the last vestige of proper restriction appears to have been lost sight of.

Finally, I have to mention dwelling-houses. From Mr. Hunt's magnificent work — the Vanderbilt house — down to the modest foliage-hidden cottage of the suburbs, what wealth of imagination, what grace of form and what diversity of plan and exterior! Is it erroneous to suppose that the great development of dwelling-house architecture in this country is largely due to the refining and ennobling influence of its women?

I have seen multitudes of cosy houses in Washington, Baltimore, Philadelphia, Allegheny City, Chicago, Milwaukee, St. Paul, Minneapolis, Buffalo and Boston, and the impressions that I have received from such inspections I count among the most instructive, pleasing and lasting ones.

In conclusion of this sketch, I would say that from a point-of-view rising above national prejudice, it is to be sincerely hoped and wished that American architects may continue in the splendid beginning that they have made, and that they may succeed in obtaining that place of honor in the world's history of culture at which the best of them are aiming!

MALARIA.—I.

FORTUNATELY, the question of malaria has not with us, in our temperate climate, the fatal significance that it has in the tropics. With the exception of yellow fever, which reaches us but rarely, and which seems to require for its development something more than the ordinary malarial condition — probably the concurrence of filth — we have no disease of miasmatic origin that is seriously fatal. However, the milder but still persistent types of malarial affection are very widely scattered throughout most of the United States, and when we consider the degree to which this affection produces discomfort and disability, and the results of its complication with other diseases, we may justly regard it as one of the most serious scourges to which we are subjected. It does not figure to any great extent in our death-rate, but it most seriously aggravates our health-rate, and it lowers to a marked degree the industrial capacity of communities subject to it.

This disease is singled out for exceptional treatment here because of the well-founded belief that it is largely due to excessive soil moisture, and that good drainage constitutes almost universally its most effective remedy. It is not proposed to touch upon its characteristics as a disease, nor upon its medical treatment; only to

consider its causation, and the manner and extent to which it may be prevented or modified by improved drainage.

As to its causation, we are really much less clear now, when we know so much more about it, than our grandfathers were with their limited knowledge and more positive hypothesis. A belief in the relation between malaria and undue soil moisture has prevailed through all time, so far as our records reach. There is little doubt that not only the Romans but the races who preceded them in southern Italy held this belief and acted upon it.

The drainage works of the Roman Campagna, which are supposed to have existed before the Roman period, were probably carried out with the intention and with the effect of increasing the salubrity of the country. It is thought that it is largely due to the fact that these works have fallen into disuse that the Campagna owes its present gravely unhealthy state. The belief that malaria was caused by marshy conditions, was formulated and clearly set forth by Lancisi in the seventeenth century. His writings and the records of the observations and discussions of his successors for a century and a half constituted the basis for MacCulloch's elaborate essay[1] on the subject, which, in spite of its peculiarly turgid style, remained until recently a standard authority on malaria.

MacCulloch accepted in its entirety Lancisi's theory that malaria is due to a combination of excessive moisture, a certain considerable elevation of temperature and the decomposition of organic matter. These conditions were most prevalent in the case of actual marshes, the uncovered borders of which where known to be peculiarly pernicious, but malaria was found to be produced extensively in lands which were not at all of a marshy character. MacCulloch says:

"I am persuaded that it will be found the very common cause of the malaria and the disease produced by the lands of this class. In the extreme cases, it is inundation and subsequent drying, falling, therefore, to be considered again elsewhere, in others, it is that drying during spring and summer, which follows the moist or wet condition of such meadow lands, as they are left by the winter rains. Instances of this, in all its degrees, abound everywhere; but as one established example is enough, I may point out the lands about Fontainebleau, at the junction of the Yonne and the Seine, notorious for the 'Fievre du Pays'; so injurious, that few escape fever or intermittent over a considerable tract, while it is a pure example, inasmuch as there is nothing else present; nothing but that drying of moist meadows, whether previously inundated or otherwise wetted in winter, which takes place under the summer heats. How extensively this cause operates as to meadow lands in all cases, be their character what they may, I need not add; and I may, therefore, safely conclude, that wherever the heat of the climate is sufficient, such tracts will be among the most common causes of disease."

He cites many instances in England where the presence of small streams and of soil moisture much less marked than that of marshes has led to the production of the disease. He also recognizes the fact that complete saturation of the ground is less to be feared than a less, but still sufficient, state of wetness.

"This fact is, in another sense, of some value, as tending to explain what I formerly remarked respecting the occasional increase of malaria in certain parts of Europe from attempts at drainage. It serves to show what was then suggested, that a very wet state of the soil was not so injurious as some one intermediate between complete inundation, or swampiness and absolute dryness."

This bad effect of drainage he regarded, however, as only temporary, for he says:

"The simplest and the best known case of the diminution of malaria, is that which arises from the drainage of marshes, swamps or fens; and, to that drainage, governments and the people both have often had recourse with this very view, since this is a part of the subject on which there are no differences of opinion."

Again, he says:

"To proceed, and to the reverse case, it is plain that wherever a tract of dry land has been converted into a marsh by inundation, whether from a breach of the sea or the overflowing of rivers, we must expect an event the opposite of the preceding, or the production of this poison where it was before unknown. I need not dwell on a subject so obvious; but the history of all lands is full of events of this nature, even on a great scale; while in our own country, from the inundation of rivers, even where the effect is far short of producing a swamp, being often the neglected cause of what are popularly called sickly seasons, in certain districts of England, as might easily be proved by a reference to facts in great number. . . .

"I may quote one instance among ourselves of the complete extirpation of malaria by the drainage of a very small piece of water, and it is worth quoting, as equally proving a then almost unsuspected cause and its remedy. This was the North Loch of Edinburgh, formerly noted for producing agues, which, since the drainage of that spot, have disappeared. And even the insignificance of this spot renders it a valuable example, as proving how very small a body of water is capable of being a permanent source of the disorders of that nature, even in a climate so little favorable to the production of malaria as is that of Edinburgh."

[1] "*Malaria*": An essay on the production and propagation of this poison, and on the nature and localities of the places by which it is produced, with an enumeration of the diseases caused by it, and of the means of preventing or diminishing them, both at home and in the naval and military service, by John MacCulloch, M. D., F. R. S., etc., etc., Physician in Ordinary to His Royal Highness Prince Leopold, of Saxe Coburg. Philadelphia: Printed and published by Thomas Kite, 64 Walnut Street. MDCCCXXIX.

In MacCulloch's time the means did not exist for studying the character and habits of the minute organisms which are now supposed to be active in the production of so many of our diseases, but he says:

"That the poison of marshes consisted in animalculæ invading the body through the lungs, sometimes, I presume, through the stomach also, is a speculation which dates as high as Lucretius, Varro and Columela, which seems to have been renewed in the days of the microscope, by Kircher and some others, and appears, naturally enough, to have found favor with Linnæus."

One of the most interesting of modern writings on the subject is an essay of more than forty years ago by Dr. John Kearsley Mitchell, of Philadelphia, "*On the Cryptogamous Origin of Malarious Epidemic Fevers.*" This essay also was written long before the perfection of the microscope enabled us to begin the study of microbes, which is now receiving so much attention in the scientific world, but it foreshadows the results of that investigation in a rather remarkable way. Dr. Mitchell advanced what he called the "notion" that malarial infection is wrought by the action of a special cryptogamic growth, and he made this notion fit the various conditions of locality, temperature and season favorable to the production of malaria in a manner that seems *prima facie*, more universally satisfactory than any previous theory on the subject; for example, this seems, better than any other theory on the subject, to account for the fact that malarial fevers are much the most active in the autumn, at a time when lands are drier and when the temperature is lower than in summer. It is at this season that the growth of fungi is the most active. In like manner, if we accept the fungoid origin we may better understand how the spread of the fungus should be arrested, as is the progress of malaria at times, by a wall, a road or a stream. Dr. Mitchell's essay cannot be regarded as of scientific value, but it must seem at least curiously prophetic in view of the now prevalent theories which connect malaria with the growth of an infinitesimal cryptogam, such as the *bacillus malariæ* of Klebs and Tommasi-Crudelli.

Dr. Mitchell's suggestion is much more carefully and thoroughly worked out than was that of Dr. Salisbury, who, in a paper contributed to the "*American Journal of Medical Science*" for January, 1866, laid claim to the discovery of the cause of malarial fever in the spores of a very low order of plant. He stated that he had found these spores in the secretions of fever patients and of no others, and that he had collected them on glass plates suspended over marshes and other malarious lands. Starting from this point, he proceeds with circumstantial statements that seemed to the unprofessional mind to be sufficient to show that the plant producing these spores is always found, in the form of a whittish, green or brick-colored incrustation, on the surface of fever-producing lands; that the spores, when detached from the parent plant, are carried in suspension *only in the moist exhalations of wet lands*, never rising higher (usually from thirty-five to sixty feet) nor being carried farther than the humid air itself; that they most accumulate in the upper strata of the fogs, producing more disease on lands slightly elevated above the level of the marsh than at its very edge; that fever-and-ague is never to be found where this plant does not grow; that it may be at once introduced into the healthiest locality by transporting moist earth on which the incrustation is forming; that the plant, being introduced into the human system through the lungs, continues to grow there and causes disease; and that *quinia* arrests its growth (as it checks the multiplication of yeast plants in fermentation) and thus suspends the action of the disease. Dr. Salisbury's theory was never adopted by the medical profession, and has now little more than a curious interest. Dr. Mitchell says:

"The only theoretic view of malaria to which I incline is that which refers marsh-fevers and some of the epidemic diseases to a living organic cause capable of reproduction by germs, as is alleged of contagious diseases; but, unlike the latter in this, that the germs are not reproduced by the organism of the sick, but exteriorly to and independently of the human body. In other words, that as the germs of contagious diseases are reproduced *in* the body, the germs productive of malarious and other non-contagious diseases are elaborated and re-elaborated *out* of the body, and independently of its agency. One is the product of *person*, the other of *place*. This notion is sustained by the fact that organic azotized substances are the only things detected in marsh air or dew which can possibly affect the health injuriously."

Leon Colin's treatise on "*Intermittent Fevers*"[2] is an important recent contribution to this discussion. He prefers the term *intoxication tellurique* to the common one, *intoxication pallustre*, which recalls only one of the conditions of the toxic action of the soil. He goes on to say:

"It is in more logical accordance with the immense development over the surface of the globe of these affections, whose appearance is subordinate:

"1. Neither to the existence of marshy sites, especially in the tropical zone, where the soil is rich enough and is sufficiently heated by the sun to suffice for the production of the most energetic fever-producing miasm;

"2. Nor to local geological conditions, for these fevers may appear on land of very diverse formation;

"3. Nor, finally, to the geographical distribution of certain plants, because there may be the greatest differences between the vegetable species of regions that are equally affected."

[2] "*Traité des Fièvres Intermittentes.*" Paris, 1870.

He thus states his opinion on telluric intoxication:

"This intoxication being the morbid result of the productive power of the soil when this power is not properly directed, we must come at last, therefore, to the cultivation of a suitable vegetation in seeking the sanitary improvement of affected regions."

The summary of the subject at the head of his first chapter is as follows:

"Fever is not due to the sole influence of marshes. It is not due to a special vegetation. In the greatest number of cases, and especially in warm climates, it is produced by the exhalations of the soil."

He says that where marshes are wanting, an attempt has been made to supply the deficiency by the hypothesis of a sheet of underground water constituting by its oscillations, under the influence of rain and of the waters that supply it, a sea comparable to the pallustral type, and, like this, emitting its effluvium at the surface of the soil by reason of the porosity of the layer that covers it. He says:

"We are far from denying the influence of this underground water, an influence so well established during the last century by Lind, who, in Holland, estimated the various degrees of salubrity of the soil according to the depth to which it was necessary to dig for wells; but what we do absolutely deny is that these layers of water have an action comparable to those of marshes at the surface of the ground; that they, in a word, constitute a pallustral medium. . . . The fibriferous miasm need not be sought so far away, as this seems irrefutably to prove. In those countries where the absence of marsh has caused a recurrence to the hypothesis of the existence of 'subterranean marshes,' it is noticed during the season of fevers that the least rain suddenly increases the number and gravity of the fevers. The more dangerous of these rains are the lighter ones, those which, instead of reaching the latent sheet of water in the ground, are only absorbed by the surface-soil. It is, therefore, especially this surface-soil which is dangerous, and the water below has no other injurious influence than perhaps to furnish it with the conditions of humidity necessary to noxiousness, and comparable to what results from rain.[1]

"Furthermore, it is only at the surface of the soil that fever is produced; whether in the tropics or in our own clime, there is no special danger in an exposure to exhalations from the deeper layers of the ground, and miners furnish far fewer patients than workmen employed in clearing and in cultivation."

This may be true as relating to mines or other deep excavations. It certainly is not true with reference to deep disturbances of the surface-soil; it is well-known that in our own country excavations for sewers or water-pipes during malarial seasons give rise in suitable localities to outbreaks of malaria. San Diego was made peculiarly unhealthy in the summer of 1888 by the large amount of street-grading then carried on, with the removal of considerable volumes of earth. Malaria has not been in modern times a marked feature of Paris and its immediate vicinity, but heavy earth-works carried on in the establishment of a new line of fortifications about the city gave rise to widely prevalent malarial diseases, which disappeared soon after the completion of the work. Similar instances elsewhere in the temperate zone have been frequently observed. Of course, all of this work involved the disturbance of the surface-soil. Indeed, Colin himself says:

"We recall the serious epidemics of intermittent fever which were developed in France during the earthwork incident to the construction of railroads — work that was executed in great part in dry countries, but where the first result was to bring into contact with atmospheric air masses of soil which had for a long time produced no growth."

But such disturbance of the surface in the constantly-repeated work of plowing and digging for cultivation has not produced the same result to any marked extent.

The following quotations from the same treatise are of interest in this discussion:

"We are far from pretending that fibriferous miasm may not originate in the putrid decomposition of vegetable matters, as we admit, further on, that the soils richest in organic detritus will generally be the most dangerous to disturb. But we think that the influence of putrefaction has been exaggerated; the rotting of flax is dangerous, more dangerous than Parent-Duchatelet thought, but still much less than was probably believed before the experiments of this *savant*.

"In my opinion, the fever is caused, above all, by the vegetative power of the soil when this power is not developed, when it is not exhausted by a crop sufficiently abundant to absorb it. Indeed, in marshes themselves, vegetation seems to be the most effective condition for rendering them innoxious, so that ponds surrounded with a luxuriant vegetation, or of which the surface is covered with aquatic plants, are infinitely less dangerous than marshy surfaces which have no active vegetation. . . . When are marshes in their most dangerous condition? It is when, by drying, we expose to the air more or less of the submerged surface, when, consequently, we expose a soil of enormous vegetative power, and which, formerly covered with water, has accumulated perhaps for centuries the elements of this power. The fevers which are then produced are not due to the emanations furnished by the putrefaction of organic matters contained in the exposed earth, for these fevers continue to be developed after the marshy layer has become solidified as more or less dry ground, all putrid decomposition being arrested.

"In Algiers, fever was developed in regions which seem to offer conditions absolutely the opposite of the conditions of the swamp, in localities apparently the dryest and the most sterile, having neither the humidity nor the vegetation nor the decomposition of a marsh. But, on the other hand, these lands which appear so sterile have an enormous productive power. In the vast and sandy plains of Sahel there is needed only a thread of water and a simple scratching of the earth to produce, as by enchantment, a luxuriant vegetation. It seems as though there was in reserve in this ground that which, developed by the least cultivation, is as propitious to the growth of crops as it is fatal to man if he subjects himself to its influence before its fertility has begun to become exhausted."

Similar observations are made in California and in our dry Western plains, many portions of which are malarious under all conditions, with a sudden and great aggravation on the introduction of irrigation.

"The richer the soil in humus, and the more it resembles a marsh, the less is extreme heat necessary; on the other hand, the less the vegetative power of the soil, the more heat is necessary for its toxic action. This explains the difference of conditions necessary for the production of fever according to season and to climate.

"The results secured in a few years in different marshes in Sologne, in the Duchy of Baden, near Mannheim, in the environs of Bône and Boufarik in Algiers, and in all the northwest parts of the United States, where fevers have singularly diminished, demonstrate with what rapidity such transitions can be accomplished. Whatever may be the danger of these works of improvement, they ought, once begun, to be energetically and actively followed up; to diminish their duration is to diminish the number of the victims who, in this battle of man with the soil, as in all wars, are the more numerous according as the war is prolonged. The works of drainage and cultivation at Slaoueli (Algiers), carried on with rapidity from the start, caused the death of 8 Trappist monks out of 28, and 47 soldiers out of 150 detailed to them. In 1848 the surroundings of the convent have a new aspect. The soil is drained and is covered with fine crops, and with from 150 to 200 inhabitants only two succumbed in eighteen months. To accelerate the work of drainage and cultivation is to concentrate the mortality within a short period, and to hasten the definite establishing of salubrity."

A peculiarly pernicious effect has always been ascribed to the invasion of marshes and low lands by the combined flow of salt and of fresh water. Probably this influence is felt in many of our own seaport localities. Colin recognizes this as an important feature of his subject, saying:

"But when, instead of having to attack a malarial site of restricted size, whether a salting-pond or not, it is a question of undertaking the improvement of vast deposits contiguous to the shore and at the very level of the sea, presenting over an immense area the especially insalubrious conditions of the mixture of fresh and salt water traversed by streams of such slight current that their deposit adds to the bar that separates these marshes from the open sea, then the means to be used will be of various sorts, and the work of transformation will be long and difficult."

We know with what admirable tenacity the people of Holland have worked for the drainage of their land, calling to their aid the most powerful hydraulic apparatus and employing steam-power without interruption for years. But in countries where the public wealth is not so well suited to the application of such efforts, where the population is less dense and less active, where, also, the climatic conditions are less favorable to the workmen because of a high temperature, the improvement of marshes of great extent becomes a task much more difficult, and at times impossible. This is illustrated by the Pontine marshes and others. He quotes from Melier the striking illustration of Viareggio:

"By reason of the establishment of a barrier between the fresh-water and the water of the sea, the village of Viareggio hitherto abandoned and consisting only of a few fishermen's huts grouped at the foot of an old tower where those condemned to the galleys were confined, has become an important town, and so sought after that the first families of Lucca have used it as their summer resort, and have built castles and villas there. This fact of sanitary regeneration, due only to the exclusion of salt-water, is all the more curious and decisive, because it has already had its counterproof. In 1768 and 1769 malaria suddenly reappeared with the force of its worst days. In the course of these two years there were 170 deaths in the total population of 1,350, that is to say, about one in fifteen. What had happened? Only one thing; the barrier had got out of order and the mingling of the two waters had begun again. The barrier was repaired and the malaria disappeared. In the following year there were only thirty-two deaths, or only one in forty."

Speaking of the difficulty attending the first cultivation of rich malarious lands, he says:

"Fortunately, modern agriculture now applies on the largest scale a process which singularly lessens these dangers, and which has the result not only of increasing the fertility of the land, but further of aerating the soil in the most complete manner; this process is drainage, which, in the highest degree, has the property of purifying the land to which it is applied. The aeration of the soil, says Barral, is certainly the chief end of the work of cultivation. The augmenting of aeration is an effective means of increasing the fertility of the soil. . . . It may be said that there is aeration every time that rain falls and drives out the stagnant air of the soil, and a new aeration each time that this water, drained away little by little, leaves voids to be occupied by air, which will be driven out again by the next rain.

"Tardieu says that drainage is of the first importance to the public health. It is now no longer permitted to doubt its effective action in improving the sanitary condition of the atmosphere, and many countries recognize the benefit. It has been said in England that drainage has, so to speak, changed the climate of that country, that in the marshy districts of Lincolnshire, fogs have diminished nine-tenths in intensity, and that the health of the people has been greatly benefited. . . .

"The modification that the soil undergoes is not a simple washing

[1] This is probably all that the adherents of the "Subterranean Marsh Theory" claim for this water, and it seems to be enough.

and drying, it is slowly produced and its maximum effect does not become active for two or three years. The most tenacious lumps of earth crack and crumble under the alternative presence of air and water. Water drains away little by little and air takes its place. Furthermore, this air with its oxygen also enters the soil from below, reaching it through the drains and escaping at their joints. This action is most important, and is generally not understood by agriculturists. It is one of the principal agents of fertility. As Barral has proved, the oxygen of the air penetrating the humus of the soil in all directions comes into contact with all of the organic matters of the surface-layer, unites with their carbon and forms an enormous quantity of carbonic acid. This is effective in breaking-up the adhesion of particles of clay which have been puddled together; it serves at the same time to dissolve the phosphates, carbonates, oxides, sulphates, etc., and place them in a condition favorable for absorption by the roots of plants. We understand from this the reason of the enormous influence that the application of drainage to broad areas has exerted on public health. It explains the marvellous results that we have just cited, results obtained in England, and especially in Scotland, and which have led Graves to this conclusion: 'The extinction of intermittent fever is the most striking, and most eloquent of all the modifications caused by drainage.'"

GEORGE E. WARING, JR.

[To be continued.]

ILLUSTRATIONS

[Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.]

ST. PETER'S EPISCOPAL CHURCH, ALBANY, N. Y. MR. R. M. UPJOHN, ARCHITECT, NEW YORK, N. Y.

[Gelatine Print, issued only with the Imperial Edition.]

KING MEMORIAL DECORATION, ST. PAUL'S CHURCH, AUGUSTA, GA. DESIGNED BY MR. F. S. LAMB, NEW YORK, N. Y.

THIS occupies the entire west end of St. Paul's Church, Augusta, Ga. The important feature of the composition is the central figure of St. Paul, heroic size, flanked on either side by life-size figures of the four Evangelists. The color scheme is very rich, and in connection with the oak is pronounced a decided success. The work was executed by Messrs. J. & R. Lamb of New York.

VIEWS IN VERONA, ITALY.

SEE article elsewhere in this issue.

COMPETITIVE DESIGN FOR CHURCH, CLERGY-HOUSE AND SCHOOLS FOR TRINITY CORPORATION, NEW YORK, N. Y. MR. R. M. HUNT, ARCHITECT, NEW YORK, N. Y.

DESIGN FOR A COUNTRY HOUSE. MR. C. W. STOUGHTON, ARCHITECT, NEW YORK, N. Y.

ITALIAN CITIES.[1] — VII.

VERONA. — II.

HAVING contemplated the tomb of the Scaligers, a visit must be made to the Arena, which, after the Colosseum at Rome and the Amphitheatre at Nimes is the finest and most complete monument of its kind which remains to us from Roman antiquity, only here the æsthetic effect is spoiled by the painful feeling awakened by the historic recollections which attach to these ruins. It is a feeling from which one never escapes when he finds himself in the presence of the ruins of Roman grandeur, which, under an imposing exterior conceal grievous memories: the temple evokes the image of human sacrifices which have too often soiled the altars of pagan worship; the triumphal arch recalls people who perished under Roman conquests; Etruria, cradle of the arts, trampled upon by the feet of the legionary, who did not even spare Greece, whose devastation achieved later by the vengeance of the troopers of the Venetian republic was first begun by the Roman cohorts; the circus recalls for us those spectacles of carnage consummated to amuse the crowd eager for blood. Everywhere murder, drama, massacre; everywhere man sacrificed to give pleasure to man, a human life offered up to gratify a crowd of other human beings. The arena at Verona is so well preserved that even to-day spectacles can be held there. At the time of the triumphal entry of Victor Emmanuel the city held a fête there, at which more than forty thousand persons were present — it formerly could contain more than sixty thousand. On the outside it measures 156 metres in length by 125 in breadth. The area reserved to combatants was 75 metres long and 45 wide. The amphitheatre contained 45 ranges of seats, which are still perfectly preserved. At the two extremities of the elipse there were two large doors, below which run platforms or tribunes enclosed by balustrades. The exterior of the building is pierced by doors of exit and corridors which serve to facilitate circulation and the departure of the spectators. The doors are of the Doric order, and some of them still bear above the lintel a number in Roman figures, which probably served to indicate the class of people for whom these different sections and benches were reserved. It is generally believed that this arena was built in the reign of Domitian or Nerva, and that the architect was Lucius Vitruvius Cerda, who likewise built the arch of Gavi. It is also said that it was on beholding this strange and terrible edifice that Dante conceived his idea of the circles of the nether hell; but this is only a supposition, it is confirmed by no historic document.

Verona still preserves several other remains of Roman antiquity — rare things in northern Italy, amongst others the Porta dei Borsari, which crosses the whole breadth of the Corso, and is composed of two arches surmounted by two tiers of round-arched windows. Each arch is framed with Corinthian columns supporting pediments with dentils like the larmiers of the Doric entablature. It is easy to see that it is a work of a debased period, and its destination would be very hard to determine from its appearance, if an inscription, still preserved, did not inform us that these two doors were restored by Emperor Gallienus, A. D. 265. From the general appearance of the structure, we can conjecture that they were actually built under the Antonines.

At the commencement of the Via dei Leoni is found an arch of the same name, which, although less well-preserved, has a more striking air. To-day it is not certainly known what was the character of this monument, and for a long time the question was debated whether it was an entrance to the forum or a triumphal arch. These two hypotheses are inadmissible. The Romans gave their triumphal arches a bolder and more imposing mien. As to forums, they were usually approached by an entrance whose monumental decoration never gave to these places of meeting the appearance of an enclosed space. I am rather inclined to believe that the Arca dei Leoni was anciently one of the city gates, and that its age dates beyond the reign of Titus.

The tombs of the Scaligers form perhaps the most curious monument which Verona possesses, and it may be considered unique of its kind; but the very numerous churches are still worthy of study, for these, comprised between the epoch which reaches from the sixth to the fourteenth century, offer every variety of the Lombard style, and more than in any other city of Italy allow us to take notice of the fashion in which this style was formed and transformed, to be subsequently absolutely swallowed up by the Italian style. San Lorenzo, which dates from the fifth century has lost in part its historic value, because it was restored four centuries later by order of the Arch-deacon Pacifique; but the interior, which has three naves, is supported by columns, whose dimensions and sections are very remarkable, and which, by their heavy and stunted form, give us precisely the idea of an art which still lacks dash, and which has not yet known how to raise itself above the vulgar means of architectural construction. Santa Maria in Organo is a more perfect building and more boldly conceived. Unfortunately it, too, has been restored by the Lombard kings of the seventh century and by succeeding bishops; and in the last place the façade has been rebuilt by San Micheli, a Veronese architect, whose work is certainly remarkable, although it has the great misfortune of being attached to a monument which we would much rather have retain its original character. The interior decoration is extremely interesting. The choir is painted by Paolo Farinato, and the stalls are composed of curious pictures in inlaid woods, executed by Fra Giovanni, one of the Olivetan monks. Formerly there was shown in this church the ass which carried our Lord Jesus Christ to Jerusalem; but little by little the monks thought they perceived that visitors turned in derision from this relic, whose authenticity appeared to them very doubtful, and they finally shut it up in a closet of the sacristy from which it at length disappeared.

The Church of San Zeno gives us a nearly complete type of the Lombard Church. It is composed, as were the ancient basilicas, of a small structure superimposed upon a larger one, so that the interior has three naves, the central one of which is more lofty than the lateral ones, and the façade is divided into two stories, the lowest of which goes with the gable of the structure which serves for the base of the edifice, while the upper story projects in the centre and rises to the pediment which crowns it, and is surmounted by a cross. The superb square tower which stands a short distance off, and which finishes in crenellations in Ghibelline form, formerly was a portion of the residence of the kings of Italy. The first story is cut at half its height by a range of elongated and coupled windows, and the single doorway which opens in the centre of the design declares itself under a full-centred arch projecting from the main wall and supported by two columns which rest on two crouching lions, and bear on their Corinthian capitals equally couchant figures

[1] Continued from No. 696, page 204.

which receive the feet of the arch. The panels which flank the columns and the void of the tympanum are enriched with sculptures in relief, very roughly sketched out, and reproducing very bizarre subjects: amongst others we see a huntsman on horseback, who is accosted by the devil. People have taken great trouble in times past to decipher the significance of this allegory, and President Des Brosses, who had a mania for solving everything, believed that the sculpture was intended to represent a tradition of the times depicting a certain king, who, having no luck in his hunt, made a compact with the devil for the sake of obtaining a full game-bag; but modern criticism has discovered that the huntsman quite naturally represents King Theodoric, who in his quality of Notary of Arius was conceived as travelling in company with the demon Heresy. The allegory which represents two cocks which have seized a fox, which also figures amongst the sculptures, has always remained a riddle. The three interior naves are separated and sustained by alternate pillars and columns whose capitals of barbaric form are enveloped in leafage, lions, dogs and serpents. In the choir can be seen the statue of St. Zeno, who was bishop of Verona in 362. This is a polychromatic statue of grotesque style which represents the bishop holding his cross in one hand, while with the other he holds a line from which dangles a silver fish, for St. Zeno was the patron saint of fishermen. In the subterranean portion of the church, supported by a forest of columns, is the baptistery, of prodigious dimensions and constructed, as the story goes, of a single piece of hollowed stone. The story used to be that a holy-water font placed near by had been brought there by the devil in person, who had gone in search of it to Istria at the order of St. Zeno. In short, this church, begun by Pepin, son of Charlemagne, and restored by Otto I of Germany, belongs almost entirely as to its *ensemble* to the twelfth century. The sculptures which frame the principal doorway are perhaps the most barbaric in all Italy, if we except those at Pisa. Jesus Christ, the saints, and angels are shown in grotesque attitudes, with misshapen limbs and monstrous heads. They are really unpleasant, disproportioned caricatures. One would say that the sculptor wished to turn the evangels to ridicule. Art was at the lowest depth of its degradation, and while architecture was already taking on just and grave forms in default of elegance the secondary arts crept on hands and knees in infantile feebleness. It is well to remark that in Italy as in Greece and Rome it was architecture which first broke the mould of barbarism and disclosed to art more vast horizons, and that it is following the impulse and example of architects that painters and sculptors perfected themselves in their turn. In proportion as the edifice acquired polish and finish, the accessories were also forced to bring themselves into harmony with it; but it was always the architect who took the first step, and in all Italian monuments, at Verona, as well as at Sienna, Pisa, Florence, Orveto, and everywhere, we can still discover evidence that the sculpture and painting always lagged behind architecture, and the frescos, the statues, the bas-reliefs, destined to decorate the monument, are always inferior to the monument itself.

The cathedral which, although in the first place built, about the tenth century, out of the ruins of the Temple of Minerva, really dates from the end of the tenth century — the epoch at which it was rebuilt — already begins to present a little more complete type of the Lombard style, which is a mixture, as we have said, of Gothic lightly tinctured with Byzantine. The façade is very harmonious, although still a little cold. The two superposed gables are well connected and complete one another really agreeably. The decoration is richer than that which we see on the façades of an earlier date, although in its entirety it still preserves that aspect of bareness proper to those periods when architecture is not yet in possession of all the resources which can enrich its creations, and is still constrained to exert all its energy in order to make sure of equilibrium and stability. The portico, whose apex reaches to the height of the rose window which punctures the centre of the design, is supported by two twisted columns planted on griffins. Inside the Gothic character is more prominent, although here, also, the mixture of styles is very visible, especially toward the choir, built by San Micheli who, indeed, had all the good qualities and all the defects of the sixteenth century, and by whom the choir was connected with the central nave by a belt of Ionic columns. Nevertheless, in spite of this jumble, the impression which one experiences is soothing and satisfying. This is why I do not agree with M. Taine, who said apropos of this cathedral that bands, arches and enrichments are alone able to give a church mystic sublimity, and that when these accessories are wanting the temple is not a Christian one. That which imprints upon a church the Christian character is in the first place the degree of Christianity practised by those who frequent it: I have seen in the country in the hidden valleys of the Alps little chapels composed of walls simply whitewashed, which on Sunday at the moment when the crowd, possessed with fervor while the priest officiates at the altar, have an aspect much more serious and inspiring than the vast basilicas where Gothic art has displayed all its luxuriousness of enrichment.

As to that which concerns style, I have already expressed my modest opinion when speaking of the Cathedral at Milan, that that which is called respect for purity of style is only proper to an age of feebleness. The artist who has imagination and genius is forced to create and break the consecrated formulas. Style is a barrier to which only spirits lacking in fire and dash can accommodate themselves, while all the great inventions in the domain of art have been made in defiance of accepted forms. Art is eternal and indefinite, consequently it must progress by innovation. When it ceases making innovations it falls into a period of decadence. Men who work after a determined style only copy. This is so true that there is no fixed manner in which one can award honor to an artist of genius. The great masters have constantly modified their talent during the course of their careers. Is there, for instance, a Michael Angelesque style? Raphael, also, although he died very young, submitted his genius to continual variations, and those who have seen, for instance, the "Transfiguration" have some trouble in believing that it was conceived by the same Raphael who painted the "Stanze."

In architecture there is perhaps more fixedness, for here the domain of invention is circumscribed by the unity of a design. The architect can only trace lines, and it is in disposing his curves and right lines in a certain manner that he succeeds in creating a *chef-d'œuvre*, but if he happens to achieve an original thing with such slight resources his merit is only greater. This is why it is necessary to accept with much reticence the scholastic traditions which attribute certain elements of architecture to one style rather than to another. It is agreed, for instance, that the pointed arch belongs in itself to the Gothic style, and there has been much discussion in times past to determine whether it was the Goths or the Arabs who invented it. Now, it is enough to know the principal data of Cyclopean or Pelasgian structure to be convinced that the pointed arch was an architectural form to which architecture would be inevitably conducted with or without the Goths or the Arabs, and that with the full-centred vault it was called to constitute one of the principal elements of solidity and embellishment. The door of the gallery of Tiryns, for instance, was formed by two jambs upon which are supported two rows of stones disposed as a triangle, and in like manner over the door of the treasury of Atreus at Mycenæ we see a triangular opening upon which rests the weight of the edifice. Now when the triangular form was discovered, the reign of the pointed arch was inevitable, and these were made, as we see, long before the Arabs or the Goths had any architecture. As to unity of style, about which the pedants make so much noise, I will remark once for all that the Greeks, who have remained our masters in the art of constructing fine monuments, paid little heed to it. In the Sanctuary of Athena at Tegeum, restored by Scopas, the portal was of the Ionic order, and in the cella a Corinthian order was superimposed upon a Doric order. In the temple at Bassæ in Phigalia a column of the Corinthian order was placed before the statue of Apollo, although the interior of the naos was supported on each side by five Ionic columns. The Phillipeion at Olympia was decorated inside with Corinthian columns, which did not hinder its being flanked on the outside with Ionic columns. The pediments of the temples containing the treasures at Olympia were half Ionic and half Doric. At the beginning of the fourth century before Christ, the three orders of architecture were introduced in the temple of Athena at Tegeum, restored by Scopas, as already stated. Finally, in the Propylea at Athens the Doric and Ionic orders alternated, as we see at the temple of Athena Apteros and the Erechtheum. Finally in this same acropolis, which is still the greatest and most perfect architectural work which human genius has yet produced, we see on the face of the Erechtheum which looks toward the Parthenon a superb specimen of the caryatid order, composed of a range of statues bearing upon their heads for capital the moulded cushions which support the entablature. We place these instances of promiscuousness before those wise men who cite Greece as an example of the grandeur which art can achieve by unity and purity of style.

This is wandering some distance from the churches at Verona. It is time we retraced our steps. H. Mereu.

[To be continued.]

Time Measurement. — The *American Analyst* has this: "Why is our hour divided into sixty minutes, each minute into sixty seconds, etc? Simply and solely because in Babylon there existed, by the side of the decimal system of notation, another system, the sexagesimal, which counted by sixties. Why that number should have been chosen is clear enough, and it speaks well for the practical sense of those ancient Babylonian merchants. There is no number which has so many divisors as sixty. The Babylonians divided the sun's daily journey into twenty-four parasangs, or 720 stadia. Each parasang, or hour, was subdivided into sixty minutes. A parasang is about a German mile, and Babylonian astronomers compared the progress made by the sun during one hour, at the time of the equinox to the progress made by a good walker during the same time, both accomplishing one parasang. The whole course of the sun during the fourteen equinoctial hours was fixed at twenty-four parasangs, or 720 stadia or 360 degrees. The system was handed on to the Greeks, and Hipparchus, the great Greek philosopher, who lived about 150 B. C., introduced the Babylonian hour into Europe. Ptolemy, who wrote about 150 A. D., and whose name still lives in that of the Ptolemaic system of astronomy, gave still wider currency to the Babylonian way of reckoning time. It was carried along on the quiet stream of traditional knowledge through the Middle Ages, and, strange to say, it sailed down safely over the Niagara of the French Revolution. For the French, when revolutionizing weights, measures, coins and dates, and subjecting all to the decimal system of reckoning, were induced by some unexplained motive to respect our clocks and watches, and allowed our dials to remain sexagesimal — that is, Babylonian — each hour consisting of sixty minutes. Here we see the wonderful coherence of the world, and how what we call knowledge is the result of an unbroken tradition, of a teaching descending from father to son."

AUGUSTE RODIN.[1]—VIII.

THE DOOR.

Figure from the Door. Auguste Rodin, Sculptor.

TO assist to a more classified understanding of the scene on the door, it may be separated into three time divisions of subject:

(1) Those who have just arrived, and express in their actions fear, horror, indifference, or mute surprise. Some stand erect, others roll themselves together like a ball, in concentric agony, and others still, grasp a foot or leg in utter desperation, as though that member was the cause of or could ameliorate their woe.

(2) Those who seek, in all the haste of wild and unguided eagerness, the friends that have preceded them. They rush through every nook and corner, over rock and under sea, blindly feeling, falling and crawling after some never-to-be-forgotten loved one. The pathos exhibited by some of these beings is touching beyond measure. Eyes filled with ever-flowing tears, and cheeks cast in everlasting agony. Not all the pains of Hell can quench this angelic sentiment.

(3) Those phantoms who have become accustomed to the place. Of these, some are continually affected by their surroundings, while others vainly and persistently grope around in the attempt to re-enact their lives on earth. Here and there is seen an isolated spirit, like the kneeling harpy, who, perched on the point of a projecting rock, peers down, with the most impertinent curiosity, into the whirling circles below her. Another, a robust figure of a man, throws his arms around his body, as if to hold himself from bursting with indignation at the awful sights which meet his protesting eyes. A third, raises his head and hands upwards in cursing reproof of the punishment of faults for which those who committed them were not responsible.

In some retired spot a majestic shadow stands in quiet contemplation of a flock of delightful little male figures, who flit about and come and go, like so many fairies, as careless of their surroundings as though they came with a breath, and on a breath would go. The grave old being that sits with his legs well apart and rests his hands on his knees, represents a man turning into a tree. On the door his back is towards the observer, and while going through this peacefully transforming process, he contentedly views the agitated panorama that stretches out in an endless vista before him. Near by, a hideous female monster has caught, within the slimy meshes of her serpent arms and legs, a gay and handsome youth, whom she presses to her breasts with an evidently mutual satisfaction.

The predominant emotion expressed on the door is that of love, in all of its unnumbered degrees, phases and characteristics, and by every kind and degree of humanity, both high and low. Some of its expressions find here their appropriate environment, while others evidence, in their every breath, that where love is there is Heaven. If sweet submission and helplessness had any effect in softening punishment, the very rocks themselves would melt in pity and forgiveness before the appealing forms of the female spirits with which the sculptor has blossomed his inferno. Perhaps he means to suggest that Heaven and Hell are individual rather than collective localities, and that no place, however dreary, is unblessed by the presence of woman's highest claim to mercy.

The sculpture of the pilasters of the door is in low relief, and treated with extraordinary reach of line. As pieces of color they are almost beyond praise. The one on the right of the door represents souls in limbo, and is composed of figures of all ages and sexes who have sinned in ignorance. The sculptor chose to treat this preliminary region in order that he might introduce infants and children, and thus give greater variety of form and interest to the art-effect. And here are scenes of the most touching dramatic interest. Half-awakened mothers pressing their long-lost infants to their emaciated and milkless breasts; children, in sweetest innocence, calling in vain for some affectionate recognition from the now insensible, but once loving arms of their parents, and aged souls gathering to themselves in tender and comforting embrace some young and saddened spirit.

The other pilaster illustrates the circle of love, and has for its principal subject the group of "Paolo and Francesca," already described. It is placed at the top, with the back of the lover towards the observer, thus emphasizing, like a crowning capital, this saddest of all heart tragedies.

[1] All rights reserved. Continued from page 225, No. 698.

The moulded exterior sides of the frame of the door, running back from the pilasters to its surface-line, are also decorated with figures, "Flowers of Evil," in low, high and full relief. All arranged with surprising grace and masterly sense of decoration.

Rodin is a great admirer of Gothic sculpture, and it has often been affirmed, because of his piercing way of seeing and reproducing Nature, that he was an ancient Gothic artist come to life again; or a guardian-spirit sent back by that secret and jealous guild to watch over the sacred structures set up by them on their journey through this sublunary sphere. Certain it is that the delicate and cunning way in which the figures have been placed on the sides of the door gives no little weight to this interpretation of the sculptor's origin.

With this, as with all the finer Gothic decoration, there is an inseparable connection between it and its background.

The high-relief group of "Mother and Child," occupies a small panel above one pilaster, while its corresponding panel is filled by two young female forms embracing each other. The illustrations of a few of the sketches of groups and figures of the door can give but a faint impression of what it comprises. Many of them are so intricate in composition that they are impossible to render except by outline. In very fact they are not subjects for illustration on paper, but are combinations of forms only to be fully seen in their proper places.

If the variety of individual action and general movement on the entire structure is endless, so is the world of emotion expressed indescribable. Each and every figure is as logically composed as the passions they represent are vibrating and individual. To attempt to give any satisfactory idea of it would be like trying to delineate the inner life of him who had the sublime audacity to cut in twain the infernal regions, and reveal to mortal eyes the denizens thereof in living fact and form.

The writer knows of nothing in art that can compare with the door. It is for pilgrimages.

Of the character of the design, in comparison with that of Ghiberti, it must be said that it is more original and more varied. Over all the figures, conscious or unconscious, there is spread a veil of mystery, a sense of waking from a long sleep. It is another world.

While formulating the scheme of the door, or living through the life of shadows that inhabit it, other subjects of a kindred nature presented themselves to the mind of the artist, and none more forcibly than those suggested by the poems of Baudelaire, between whom and Dante there is, in the judgment of Rodin, much community of spirit. Between the two he ran riot with the creative source that flowed in upon him, and from the ends of his bewitched fingers there went out a great multitude. One idea inspired by the French poet is represented in the figure of "Sorrow," a young girl pressed down by a weight upon her shoulder, and as difficult to represent, by any process, as the Syren group. Nor does any single view tell its whole story, for each profile gives a new and unexpected grace. This supple little creature, not more than eighteen inches high, is regarded by the sculptor and his friends as one of his very best compositions, and many copies of it have been made for the latter in both marble and bronze. Its commercial success was cut short at the beginning, for the first duplicate was ordered by an art-dealer, who, after it was completed, decided that he did not like it. Another plaster illustrates the thought contained in two verses of Baudelaire's poem, "The Death of the Artists," which reads as follows:

> "There are those who have never known their idol,
> Those sculptors, cursed and marked by a stigma,
> That forever beats their breast and forehead.
> They have one hope, strange and dark Ending!
> That Death, hovering like a new sun,
> Will blossom the flowers of their souls!"

The group is composed of two figures, the poet, standing mournfully, with his left hand pressed against his forehead, while an unseen female form, full of the sweetest sympathy, appears at his back and extends her arms almost around, without touching him. Always near though never known.

OF RODIN'S BUSTS, STATUES AND SKETCHES.

The appreciations of the bronze mask of "The Broken Nose," given in a previous article, resume pretty fully all that need be said concerning it. It is an inevitable reminder of early antique sculpture, and it is doubtful if anything of its kind has been done since that period that so closely resembles it. Possibly a trifle dry, it is yet carried to an extreme of a great kind of modelling. It is the sum of modelling, as such, that the sculptor has ever done. And that it should be made by a youth of twenty-two! The little plaster bust of the priest Aymar, is also dry, though thoroughly studied as a form, and the nature of the subject preserved with inflexible tenacity.

These two pieces are all that the sculptor possesses of the first twenty-one years of the study of his art.

Of "The Age of Brass," essays could be written without doing overjustice to its merits, and the time will come when such caressing tasks will be more often pleasurably performed than now. Well may this unlegended bronze tempt the curiosity of the beholder to find out its meaning, and inspire the giver of names to search his mythological catalogue. For nomenclature is uncertain as the riddle of Omar Khayyám, and as reticent as a Hindoo idol.

Of Rodin's larger figures not one is so pure a work of art and

sculpture. Pure, because it is the strongest and most spontaneous expression of his nature, burdened with neither name nor outward purpose. The short history of its origin has already been told. Due to the urgency of a sentiment so complete that it formed itself, through the aching hand of the sculptor, into a sphinx, so silently dramatic that none have entered into its secret. It was the first of the sculptor's full statues seen by the writer, and it seemed to him the most living piece of sculpture, except the Greek, that he had ever seen. And he feels that there is no other way but to set it up as a household god, let loose the veins of admiration, and repeat with ever increasing pleasure the sense of elegance and firmness by which the noble Belgian soldier has been made immortal. Immortal, not only in the truthful transformation of his quivering flesh into bronze, but as a symbol of the workings of a poetic and mystic soul.

In conception "The St. John" is as complete as its purpose is evident. It seems an embodiment of the forerunners of all centuries, a personality that gives authority to history. It makes its own invisible audience, and creates its own atmosphere. The primitive propriety of its type, rude and ungainly, is a twin brother to its faithful reproduction. And it finishes, until a greater than Rodin shall come, the whole race of harbingers. It is greater than "The St. John" of Donatello, because it needs no accessory to indicate its identity. He that runs may read.

Of the type selected by Rodin to represent St. John there has been some criticism, because it was affirmed to be physically lower than that of Donatello. This criticism suggest some very interesting considerations: of the models of the present day, the different ways of reproducing them, and above all, upon what Rodin's style of sculpture is founded, and requires more space than can be given to these articles.

If "The Age of Brass" is the sculptor himself concealed in the figure of a young warrior waking from the half-sleep of unknown strength, in "The St. John" he is fully manifest as the matured chieftain heralding the coming of a new and reviving force in art. But from a truer point-of-view the latter has as little to do with any biblical purpose as the former with an historical period. Both, are, purely and simply, pieces of sculpture.

As "The Broken Nose" was readily taken as a reminder of the antique, so the "Torso," of the first sketch of "The St. John," would be accepted as a veritable specimen. To all intents and purposes it is, for it represents, so far as it goes, just as fine a note. It is really the half-way point towards the antique. The female figure entitled "Fragment," the "Back View of a Study of Ugolino," and the "Torso," are good specimens of a style of modelling invariably characteristic of certain moods of the sculptor, and what he regards as realistic sculpture.

"The Men of Calais," a sacrificial procession of coporeal apparitions, people the private studio of the sculptor, on the Boulevard de Vaugirard. They are still in plaster, a little over life-size, and not quite completed. The committee having this monument in charge desired only one statue, that of Eustache de St. Pierre, the principal personage in the memorable history of the siege of Calais, but the subject was too complete and inseparable in interest to be divided, and the sculptor, nobly appreciative of this dramatic whole, chose to make the effigies of all the heroes, for the price he was to receive for one.

And here they stand, six in all, clothed in long shirts, each with a rope around his neck, as ready to march into sculptured fame, as they were five centuries ago into the presence of a conquering king, and thence to the gibbet. The inhabitants of that town, reduced by famine to capitulate after eleven months of courageous defence, were summoned to deliver up to Edward III of England, six persons from among them upon whom he could satiate his vengeance. At this news the people broke out into wailing. "But then there uprose the richest citizen of the town, whom they called Mister Eustache de Saint Pierre, and he spoke thus before them: 'Great pity and great misfortune would it be to see such a people as this perish. I have so great a hope of having grace and pardon from our Lord if I die to save this people, that I wish to be the first, and I will place myself willingly at the mercy of the King of England.' When he had said these words the crowd was moved, men and women throwing themselves down at his feet, weeping. Then another citizen, who had two daughters, and was called Jean d'Aïre, arose, and said he would accompany his friend Mister Eustache. This noble example was followed by two brothers, named Wissant; lastly, two other citizens, whose names, some say have not been preserved. The whole six, with ropes around their necks, and bearing the keys of the town, were conducted by the governor, John de Vienne, to the English camp. Edward, on seeing them, called for the executioner; but the Queen and his son interceded for them and obtained their pardon." Each figure, according to its temperament, expresses a different emotion. One goes in humble submission, another in repressing rage, while St. Pierre, the most heroic of all, grasps with trembling desperation the ribbon upon which are strung the keys of Calais' gates, raises his head in contemptuous defiance, and stretches up like a proud saint, fit to face all the conquerors. None of these statues are god-like, but are intensely, and almost brutally human. Great, all the same, because they are men of their day, of to-day, and will be forever. Nor do they seem to feel for themselves as individuals, they go as a self-sacrificing answer against human cruelty, crying out like giants.

As statues they have the air and presence of Colossi. It is the same with many of the figures on the door, in a sense overriding the prevailing impression of numerical surrounding, or even of general composite purpose, and forcing the observer to regard them as Olympian beings, around which the tragedy of death and hell goes on as a momentary farce.

Rodin's busts.

Since Rodin's return to Paris — 1877 — he has made busts of some of the most distinguished men in French literature, art, and public life. Beginning in 1881, with that of Jean Paul Laurens, and following with Legros, Hugo, Dalou, the sculptor, Antonin Proust, Rochefort and Henri Becque, and also those of Mesdames Roll and Morla.

The Laurens bust appears like an early tribal patriarch pushed out of oblivion by some resurrecting power, bearing upon his venerable form the dust and mold of forgotten ages.

Legros, a fiery sensibility harassed by antagonistic surroundings, his lineaments preserved in saving metal by an almost painful sympathy.

Hugo is an old god put together with the eagerness of a Titan, and fit to mark an epoch.

Dalou represents a class, the legend of which, is, "He faced sorrow and walked in loneliness." A bust, sent into posterity with a grip and fibre as determined as that of a conventual anchorite who preaches by his own life the abnegation of every human joy.

Of no bust that Rodin has made would there be as much curiosity to know what he could get out of it, as that of Rochefort. A cold-eyed, turbulent, civic cynic; a fiery "sagittary, whose shafts are already regathered into the store-house of yesterday." But the "bullets that the sculptor put on before, and took off after dinner," were the innocent outward semblances of a dissection, of which Rochefort had no conception, and which have translated him into a force in art and a permanent subject of history.

The marble bust of Madame Morla was exhibited in the *Salon* of 1888. Of over fifty newspapers notices, all regarded it, with four exceptions, as the best piece of sculpture there, and in nearly half of them, its author was referred to as the greatest sculptor of his time.

Leon Plée, in his report of the busts of the *Salon*, wrote as follows: ". . . they are beautiful, and yet we know of a very simple one, that is still more beautiful, it is the bust of a woman, by that great artist who is known as Rodin.

"We have never seen, even in the works of the Renaissance, such youthful lines or an equal suavity of contours. Those half-closed eyelids, the sweetly raised head, the young woman by Rodin seems to wake from some dream, some mysterious vision.

"Her adorably modelled bosom pushes back the gown of fur that oppresses it. Strange creature! one would say that she was escaping from her marble covering like a flower from its verdant envelope, as fresh, as pure, as virginal. It is the master-piece of Rodin, and perhaps the master-piece of the *Salon*."

This bust was the first work purchased by the State, at the *Salon*, for the Luxembourg gallery, for the sum of eight hundred dollars. Exquisitely charming as it is, the sculptor does not regard it as a fully satisfactory reproduction of his model, because it bears too much the impress of the character of the superior marble cutter that executed it. Rodin understands the fine fact, that just in proportion that a marble workman excels in his trade does he unconsciously give his work his own interpretation of the model which he copies. And this, in spite of the most exacting means of mechanical measurement that he may employ. With a sensitive sculptor this is precisely what is not wanted, and the only way that he can insure the exact reproduction of his model in marble is to do the work himself. But this method is practically impossible, because he cannot afford to do it for the prices he receives. To escape this unfortunate condition of things, Rodin, like all good sculptors, prefers bronze reproductions of his models, and by the wax process. In this way his work is not changed by any intermediate hand in its transformation from one material to another. The color of bronze is also a matter to which the sculptor gives the most tasteful attention. When possible, he casts his models in silver.

The unfinished condition of the bases of the Laurens and Morla busts, have been the subject of considerable critical comment, though one or two writers have suggested that none knew, so well as Rodin, how to make a crude and unfinished piece of marble appear like a work of art. Nor does any one know better than he that certain heads, when made into sculpture, cannot be treated as isolated divisions of the human body but must have, as a necessity of their proper expression, some accompanying intimacy of form, some warmth of accessory. In his treatment of these busts the sculptor has shown how well he understands this rarely demonstrated principle in the art of making busts, and of the individual requirements of his subjects. All is in harmony.

Another characteristic of the sculptor, is that of often stopping work on a figure the moment he has found, by general movement, the fundamental object he was seeking, and leaving the head, hands, and feet unfinished. And he gets so much life into this movement that the most fastidious art-lovers are glad to possess such unfinished work in bronze or marble. Rodin seems to exult in reiterating, in this way, the facts of primitive sculpture.

Physiognomical details are also often neglected by him, the pose of the head telling the whole story. He seeks the great germinal principles first, illustrating the old saying that the slightest touch of a master produces art.

In his busts Rodin makes men greater than they are, he hides himself in their personality. They have the authority of types, and thus become the property of mankind. T. H. BARTLETT.

(To be continued.)

COMMUNICATIONS

[*The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.*]

LICENSING ARCHITECTS IN TEXAS.

DALLAS, TEXAS, MAY 16, 1889.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — The leading article in the *American Architect and Building News* in the issue of the 4th of May, in reference to the Bill to regulate the Practice of Architecture in the State of Texas, was apparently written without properly studying the subject. You say: "It has been suggested in other States that persons practising without a certificate should be denied the assistance of the courts in collecting payment for their services. If any such rule has been adopted in Texas, it will be best for architects from outside, however well qualified, to be cautious in accepting commissions for which they may never be able to collect their pay," etc.

No such suggestions as the above have ever been made in the bill, and you cast a slur and make a strong and deep cut at the rules and regulations of the Association of Architects, unwittingly, perhaps, but certainly in an injudicious and unkind manner. If other State Associations have erred in putting a premium upon dishonesty on the part of proprietors or clients, Texas has not recourse to such measures, and offers no hindrances at all to competing architects from other States; in fact, it entitles them to the highest considerations at the hands of the Association and building public.

The bill, as formulated, was favorably received by the Committee, unanimously recommended and introduced in the House, but, owing to pressure of business, was never called. Hence the architects of the State have not the law and protection you credit them with.

Enclosed please find the full text of the bill as presented to the Legislature of the State of Texas, and make such corrections in your next issue as may put the Texas State Association of Architects in the proper light. Yours truly,

GEORGE W. STEWART, M. T. S. A. A.

[WE are only too happy to set this matter right, and to express our satisfaction with the draft of the bill, which bears marks of the considerateness and common-sense which the Texas State Association of Architects has previously shown in regard to other matters. The only regret we have is that the authentic information now furnished us was not sent us before, instead of after, we found in the daily papers the paragraph on which our comments were based. Mr. Stewart does not, perhaps, reflect that after a statement, not obviously absurd, has been disseminated all over the world by the Associated Press, it is too late to spend time in "properly studying" it, and we must usually make our remarks upon it when it comes to us, and as it comes to us, or expose ourselves to the reproach of publishing only the most antiquated news. As to the denial of the assistance of the courts in collecting bills for the services of unlicensed architects, we cannot find that we made any assertion whatever about the Texas bill, in regard to which we did not pretend to have any information, but contented ourselves with mentioning what had been proposed in other States, with a suggestion that it would be well for architects who intended to practice in States in which they were subject to a special statute to find out what that statute was before they incurred any risk of loss from its operation. Under the bill as proposed, which will, we should judge, be enacted at the next session of the legislature, foreign architects who practice within the State without a license, unless they visit the State for the purpose of engaging in competition, are liable to a fine of not less than one hundred or more than five hundred dollars. Even this information will be interesting to a good many of our readers, and, while we repeat that the Texas Association seems to have drawn up its measure with the utmost moderation and regard for professional courtesy towards their brethren outside the State, we should have been glad if they had realized how highly their brethren would have appreciated the early and exact information on the subject which they alone could give.— EDS. AMERICAN ARCHITECT.]

A BILL TO BE ENTITLED AN ACT TO REGULATE THE PRACTICE OF ARCHITECTURE.

SECTION 1. *Be it enacted by the Legislature of the State of Texas:* That hereafter no person shall pursue the business or profession of architecture in this State except in accordance with the rules and regulations herein prescribed.

SEC. 2. Within thirty days after this act takes effect, it shall be the duty of the Governor to appoint and commission a Board of Architects, to consist of three professional architects, each of whom shall be a citizen of the State and shall have practised the profession of architecture for at least the period of seven years. The members of said Board shall hold their offices for the term of two years, and until their successors are appointed and qualified; but no member of said Board shall receive any compensation for his services, nor shall the expenses of said Board become a charge against the State. After the first appointments of said Board, all subsequent appointments shall be made only from licensed architects within this State.

SEC. 3. Said Board shall be styled the "Board of Architects of the State of Texas." They shall keep a record of all their proceedings and such records are hereby declared to be public records. The presiding officer of the Board shall be *ex-officio* the custodian of such records; and copies of such records certified by the presiding officer of the Board and attested with the seal of the Board shall be admissible in evidence in all of the courts of this State, and in all cases, civil and criminal, without further authentication. The seal of the Board shall consist of a Texas star with the words "Board of Architects" around the margin.

SEC. 4. Within thirty days after their appointment, the members of said Board shall meet at the Capitol and organize by a selection of one of their number as presiding officer, and they may appoint one of their number to act as Secretary of the Board. When organized, the Board shall have the power to administer oaths and to take testimony upon all matters properly within their cognizance. Said Board shall meet regularly at the Capitol of the State once in every six months, at such times as may be designated in the minutes of the Board, and at such other times and places as the presiding officer may designate, who is hereby vested with authority to call special meetings of the Board for the transaction of any business properly within their cognizance. Notice of all special meetings of the Board shall be given by publication in some newspaper published in the city of Austin for five consecutive days before such meeting, and in case it is known to the presiding officer that other persons may have an interest in such meeting, he shall also notify such persons by due course of mail.

SEC. 5. No person shall practise the profession or pursue the business of an architect without a license from the Board of Architects. Any person desiring to pursue such occupation shall apply to said Board for license, and thereupon the Board, at some regular or special meeting, shall proceed to examine the applicant as to his qualifications, and with special reference to the proper construction of buildings, the strength of materials, the laws of sanitation as applied to buildings, and the ability of the applicant to make practical application of such knowledge in the ordinary professional work of the architect. If such examination is satisfactory to a majority of the Board, a license shall issue to the applicant, under the seal of the Board, authorizing him to practise the profession of architecture within the limits of this State. All members of the Texas State Association of Architects shall be entitled to license without examination.

SEC. 6. All licenses shall be subject to revocation by the Board of Architects, for gross ignorance, negligence, recklessness or dishonest practices; but before any license shall be revoked the holder thereof shall be entitled to at least ten days notice of the time and place for the hearing of the accusation against him, and shall be informed of the nature of such accusation. He shall also be entitled to process for his witnesses, and to be heard by himself or his counsel, or both in open, public trial. And no license shall be revoked except by the unanimous vote of all the members of the Board.

SEC. 7. If any person shall pursue the business or occupation of an architect in this State, without first obtaining a license therefor, in accordance with the provisions of this act, he shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than one hundred nor more than five hundred dollars. But nothing herein contained shall be construed to prevent any person in this State from planning or supervising the erection of his own building; nor shall the provisions of this act apply to architects from other States who may desire to compete for some special building, public or private, and who may visit the State in person for such special purpose; nor shall it apply to students or employés of licensed architects within this State, acting for and by authority of such licensed architects.

SEC. 8. The fee for each license shall be ten dollars, which shall be paid to the Board of Architects upon delivery of the license, and the fund thus accrued may be expended by the Board for the payment of their travelling and other expenses. An itemized account shall be kept of such receipts and expenditures, which shall be resorted to the Governor thirty days before the regular meeting of each legislature.

THE IOWA SOLDIERS' MONUMENT.

NEW YORK, May 8, 1889.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Would you kindly inform me if it has yet been decided which of the Iowa Soldiers' Monuments deserve the prizes. If a decision has been made, it would be of interest to the public, as well as to the profession, if you could give an illustration of the successful design. Respectfully,

FREDERICK H. STEWART.

[WE refer this question to our readers. — EDS. AMERICAN ARCHITECT.]

NOTES AND CLIPPINGS

PAPER FOR BUILDING. — In 1864 a hot-headed French inventor offered to contract for churches and cathedrals, including a peal of bells, says *The Paper Makers' Circular*, to be constructed entirely of paper. From chimes to cannons was but one step, and the Gallic inventor announced his readiness to supply a train of artillery of any given calibre, made of the same material. Building-paper is enjoying a perfect boom just now, and is proving a fine material in the hands of architects and builders for several uses, inside and out. The advantages, briefly stated, are: Continuity of surface, or its adaptability for making into rolls of almost any width and length, and flexibility; or by glueing several layers together it may be made stiff, and will stop the passage of air because of the absence of joints. Unlike wood, it has no grain, and will not split. It is unaffected by change of temperature, and thus has an advantage over sheet-metal for roofing materials. In the fourth place, though in its natural condition it is affected by moisture, it can be rendered waterproof by saturating with asphalte or by various other methods. Fifth, being a non-resonant body, it is well fitted to prevent the passage of sound. Finally, it is a non-conductor of heat, and can also be made of incombustible material like asbestos, or rendered resistant to fire by chemical treatment.

DOMESTIC ELECTRIC HEATING. — One of the electrical projects in the air at the present time, says the New York *Electrical Review*, is the problem of heating dwelling-houses electrically, without the use of any very hot substance. It is claimed that wall-paper can be made in such a way that the passage of currents of low electro-motive force will heat it moderately warm to the touch, and thus diffuse throughout the room an agreeable temperature. This is, of course, theoretically possible and may even become feasible in a more improved state of the art. A source of warmth coming from the entire surface of a room would certainly be the perfection of house-heating and would do much to make this so-called temperate zone of blizzard's sea blows endurable. Why may not the artificial illumination of the future be of the same nature? Recent developments are tending towards the possibilty of infinite subdivision. The charm of a room illuminated with myriads of candles is one never to be forgotten, though it is one which few of the present generation have seen. We predict that the ultimate use of the glow-lamp for domestic purposes will be to diminish its size and increase its number.

India-rubber Pavement.—"I notice in the columns of several foreign engineering journals," said a Des Moines contractor to the editor of the *Iowa State Register*, "that for paving streets India-rubber threatens to enter into competition with asphalt. This new pavement is the invention of a Mr. Busse, of Leyden, Prussia, who has introduced it in Hanover. He used it first in the summer of 1887 for paving the Goethe bridge, which has a surface of 10,764 square feet. The new pavement proved so satisfactory that about 17,000 square feet of ordinary carriage-way was paved with it last summer. The Berlin corporation, being favorably impressed with the new pavement, has had a large area paved with it as an experiment. Perhaps this is the solution of necessity for a noiseless pavement to be used in the vicinity of court-houses, churches, schools and libraries, where the car rolling over the stony street is an insupportable nuisance."

Soda Locomotives.—Four locomotives to be run by soda, which takes the place of fire under the boiler, have been built in Philadelphia. They are for service on the streets of Minneapolis, Minn., where steam engines are forbidden. The engine is about sixteen feet long, entirely boxed in, with no visible smoke-stack or pipes, as there is no exhaust or refuse. The boiler is of copper, eighty-four and one-half inches in diameter and fifteen feet long, having tubes running through it as in steam boilers. Inside the boiler will be placed five tons of soda, which, upon being dampened by a jet of steam, produces an intense heat. In about six hours the soda is thoroughly saturated, when the action ceases. A stream of superheated steam from a stationary boiler is then forced through the soda, which drives out the moisture, and the soda is ready for use again. The exhaust steam from the cylinders is used to saturate the soda, and by this means all refuse is used. These engines are the first of their kind that have been built in this country. They will have the same power as those used on the New York elevated roads. Soda engines are used in Berlin and other European cities very successfully, and they also traverse the St. Gothard tunnel, under the Alps where the steam engines cannot be used, because the tunnel cannot be ventilated so as to carry off the noxious gases generated by a locomotive.—*Railway Age.*

The Death Roll of the Forth Bridge.—A writer in the *Pall Mall Gazette* says that, including five drowning cases, the fatal accidents from all causes in connection with the Forth Bridge amount to 53. As regards those killed in the actual construction of the bridge, there have been 44 lives lost, death taking place either at the time of the accident or soon after. The total number of accidents which had occurred up to September, 1888—mostly in the four years beginning with September, 1884—was 543, of which the greater part, of course, were of the description ranging from "serious" to "slight." Of these 543 cases, 84 were treated in hospital, and 459 at the homes of the injured persons. The following hairbreadth escapes are recorded: One man trusted himself to work at a height of 120 feet over the waters of the Firth, simply grasping a rope. His hands got numbed with cold, his grasp relaxed, he fell backwards down, and down, into the water; and he was fished up alive. In another instance a spanner fell a distance of 300 feet, knocked off a man's cap and fell on the wooden stage at his feet, and went clean through a four-inch plank. In another case somewhat similar, a spanner which fell from a great height actually tore a man's clothes from his waistcoat to his ankle, and left him uninjured. One of the most thrilling incidents I heard of was that in which the "staging," or scaffolding on which the men work high up in mid-air, gave way, carrying a number of poor fellows in its fall. Two of these men, striking some portion of the work in their descent, were killed before they reached the water; one or two others who fell clear of the girders were rescued from the Firth little the worse for their fall and immersion. Two others, however, managed as they fell to grasp at one of the struts high up above the water, and there they clung for dear life. To effect their rescue was itself an undertaking of no slight danger. But efforts were promptly made, and before long the man who happened to be nearest the rescuer was reached. And this brave fellow, hanging there to the ironwork, actually persuaded the rescuers to delay taking him off before they saved his companion! "Never mind me!" he said, "I can hold a bit longer; go and see to my mate, for he's getting dazed, and he'll drop!" I am glad to say that this hero and his mate, too, were saved.

TRADE SURVEYS

The strongest feature in the business situation to-day is the springing up of a great number of little industries. At no time in the history of the country has there been so many new concerns started up. A broad foundation is being laid for an immense business. Building activity was never greater. Lumber dealers and architects say that more material is going into house and ship and mill building this year than ever in the history of the country. With some trifling exceptions this is also true of the iron and steel trades. Disregarding the declining demand for railway material for a few months, the iron and steel makers have had a better demand for their products than during the first four or five months of 1888. At the present time all the pipe-mills and sheet-mills are crowded with work. The plate and structural mills have nearly all they can do. The Western wire and steel nail manufacturers are very busy. The bloomaries throughout the country have a good stock of work on hand. Throughout the East the bar-mills are running half-time, but in the West they are doing better. The Southern blast-furnaces are sold from two to four months ahead, and even in Pennsylvania the output has decreased very little during the past few months. These sentiments do not harmonize with ordinary reports in trade journals. The iron and steel makers are firm believers in the theory that the summer and fall trade will be of booming proportions. Railroad projectors and promotors are waiting till some few things can be done which will strengthen confidence. Land speculators are giving it out that during the next twelve months an unusual amount of new railroad construction will be built in new localities. Capitalists interested in Southern railroad-building activity are confident that double the amount of railroad-building will be done in the States south of the Atlantic and New Mexico during the next twelve months than was done during the past twelve. The little manufacturers employing from 50 to 300 hands throughout the North have been very careful all along to not buy more material than they thought they actually needed, but within the past two weeks fresh activity has been apparent in many lines. The boot and shoe makers have been very prudent buyers of leather, but it is said that they are now purchasing larger stocks preparatory to an active fall trade. The paper-makers who have been a little apprehensive of a break in prices seem now to be satisfied that the output will not be more than the market will absorb. The manufacturers of staple hardware are holding their trade combinations together, and are realizing better prices in consequence. The manufacturers of textile goods are paying a fair dividend, and preparations are being made in a good many centres to build new mills and enlarge old ones. There is a better feeling among woolen manufacturers and textile, machinery-makers they say, than within the preceding six months. In a general way the manufacturers of textile goods both North and South are extending their plants and their capacity, and are making preparations for a heavier production. The tendency in prices generally is downward. Cost of production, if it has not reached its rock-bottom basis, is not very far from it. Manufacturers and large operators are anticipating a recurrence of the active demand which has so often taken place after a long period of declining prices. The country is not at all overstocked either with crude material or finished products.

The supplies of lumber are not at all beyond what it is safe to have in stock. The supplies of coal at shipping points do not exceed from one to two weeks' ordinary market requirements. The stocks of shop and mill products are of very restricted proportions. The same statements come from Western warehouse men and jobbers. From no quarters are there complaints emanating of an over-supply of any kind. Manufacturers are keeping within sight of the market demand. Jobbers are refusing to carry larger stocks than they feel that they can succeed in distributing in sixty to ninety days. Manufacturing interests generally are acting in a creditable manner, contracting only for actual supplies as will enable them to meet their customers' wants. Speculators in stocks find it impossible, so they admit, to draw the outside public into speculation. There are numerous quantities of railroad securities already to be unloaded as soon as an upward tendency can be manipulated. The public are cautious,—even worse, are suspicious—and it is not at all likely that the schemes of stock speculators will be realized this year; namely, that of dragging the public into a speculative movement in the various lines of railway securities which have been so carefully bolstered up for months past. The great business inquiry everywhere is: "Are we at bed-rock?" In many senses we are, but there are a few elements of doubt to be eliminated before the general upward movement that has been so often predicted will set in. The volume of ship-building work is now larger than it has been for years. The bulk of car-work placed last spring has been done. More rails have been made and sold this year than were made and sold at this time last year. The locomotive establishments have only a moderate amount of work on hand. In four or five places a few hundred hands were discharged last week. Strikes are occurring in a few Western coal mines. Over-excessive reductions and compromises are probable. A heavy demand for bituminous and block coal has set in throughout all coal centres west of the Alleghanies. During the past thirty days several large coal-mining companies have been organized: two or three to develop coal deposits in Alabama and Tennessee, and two or three to develop coal deposits in Southern California, two in New Mexico, and one not far from the Northern Pacific Railroad in Montana. However the industrial prospects may be regarded by financial writers in daily papers, the managers of the great industries have the utmost confidence in an enlarging demand and in a general expansion of activity. The Southern cotton-mill owners are stimulated to further investments. Capitalists in Northern States are lending their money and encouragement to all manner of new industrial enterprises, in which cotton goods manufacturing gets a marked preference. Extensive purchases of ore territory have been made within a few weeks past in Tennessee, Virginia, Alabama, and there are rumors of a combination of iron-making industries in and near Birmingham which will rival the recent combination of steel-makers in Illinois. The flow of Northern and foreign capital into the South and Southwestern sections is rather increasing than declining. Two years ago a land-speculation scheme was attempted, and there are signs of its return.

In some localities of Louisiana, Texas and Alabama land is being held at speculative figures. As a rule the good sense of investors keeps them out of danger, but there is still some undue speculation going on. It would assume much more serious proportions than it has or is likely to, but for the enormous railroad construction which has opened up so much new territory. Capital finds all the opportunities that it desires. Western architects have stated within the past two weeks that their anticipations regarding small house and shop building throughout the Western States have not been overdrawn. Small towns are gaining at the expense of large ones. Among the causes for this activity are to be noticed these: First, the industrial boom throughout the South. Second, increased mining activity in the far West, and third, the outflow of population from the cities, into inviting localities beyond the Mississippi, fourth, to larger and more easily reached markets for agricultural products, and fifth, to the sense of security felt by producing interests all through the West that railway charges will be hereafter kept in proper bounds. The heretofore exclusively agricultural character of the West is being broken up by an infusion of the industrial spirit and hundreds of little markets for agricultural products are springing up. Ten years ago farm products had to be hauled much longer distances to market than now. This decentralization of industries is but the first part of the great prosperity that is developing this and other regions west of the Mississippi River. This development is only in its infancy. Activity there will react upon the territory east of the Mississippi region and is already doing so with decidedly practical results. Agricultural-implement makers are crowded with work and have been all the year to meet the demand in the West which a few years ago had no existence. The developments of the lumber interests in Arkansas are running a good deal of capital to that State. The extent of this activity in far-off States has not been fully appreciated by the controllers of industries and of finances in the East. The foundations are being laid for vast markets and interior markets will be developed between Illinois and New Mexico, that will in a few years double and quadruple the shop productions of that region. This tendency is visible in the demand for machinery and equipments of all kinds. Western Kansas, Arkansas, Colorado and other States of the West are chief factors in it, a few years ago absorbing only trifling quantities of machinery and farming equipments, now valuable markets for innumerable products.

S. J. Parkhill & Co., Printers, Boston.

COPYRIGHT 1889 BY TICKNOR & Co

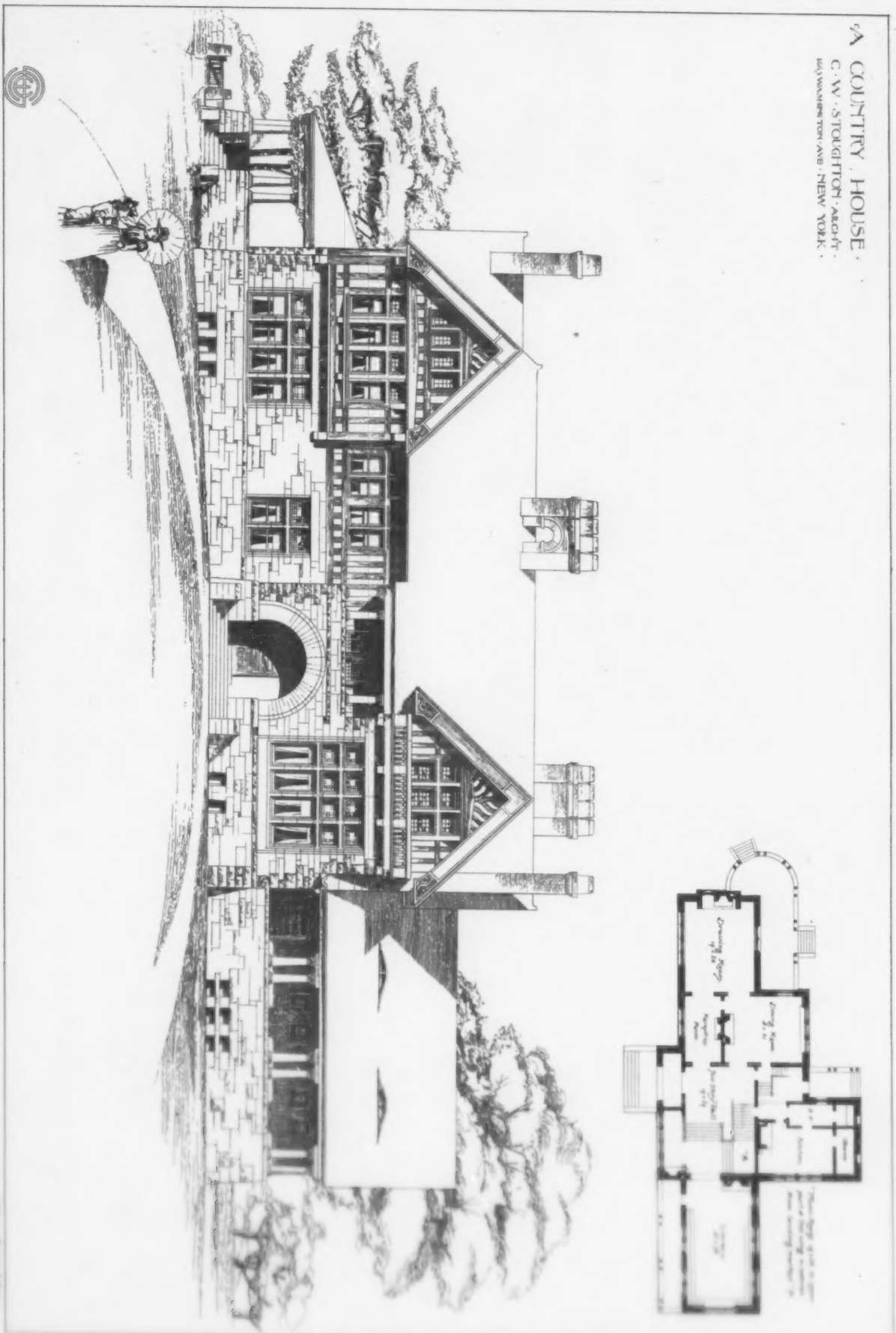
"KING" MEMORIAL "DECORATION" SAINT PAUL'S CHURCH AUGUSTA GA.

COPYRIGHT 1889 BY TICKNOR & Co

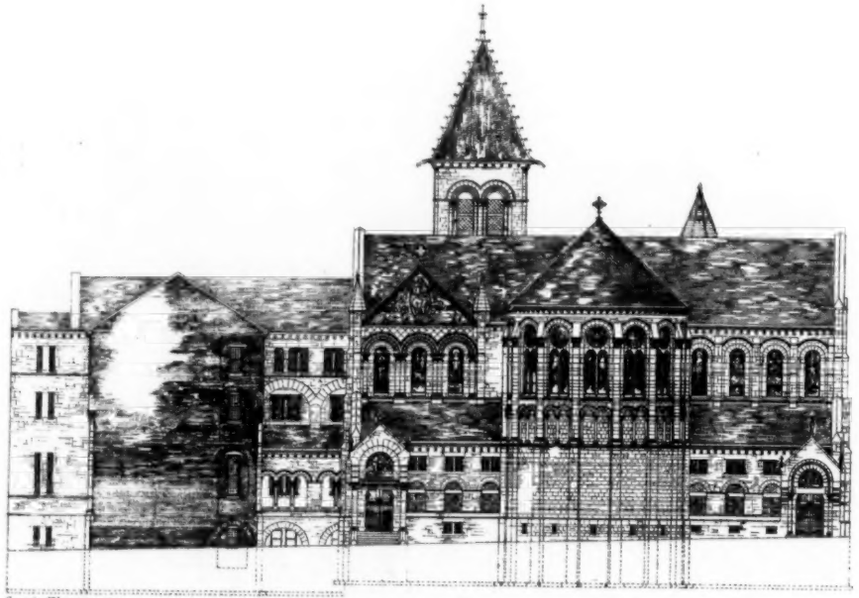
A COUNTRY HOUSE.

C. W. STOUGHTON, ARCH'T.

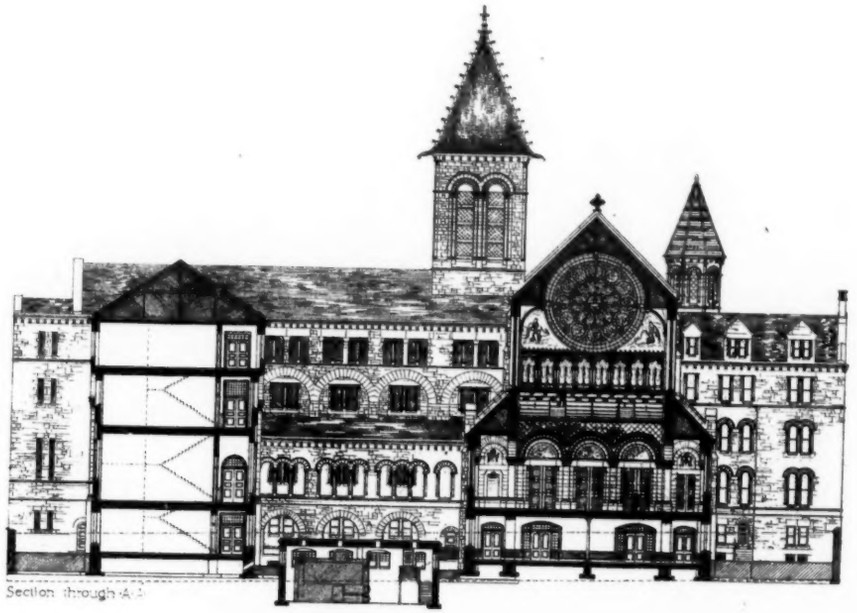
160 WASHINGTON AVE. NEW YORK.



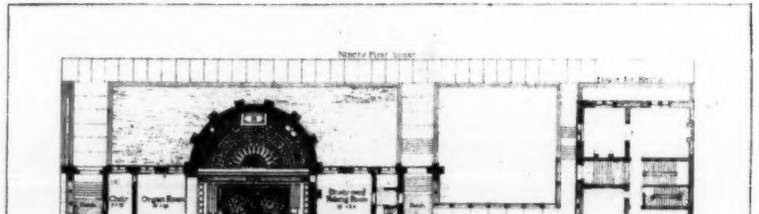
COPYRIGHT 1889 BY TICKNOR & CO.



South Elevation

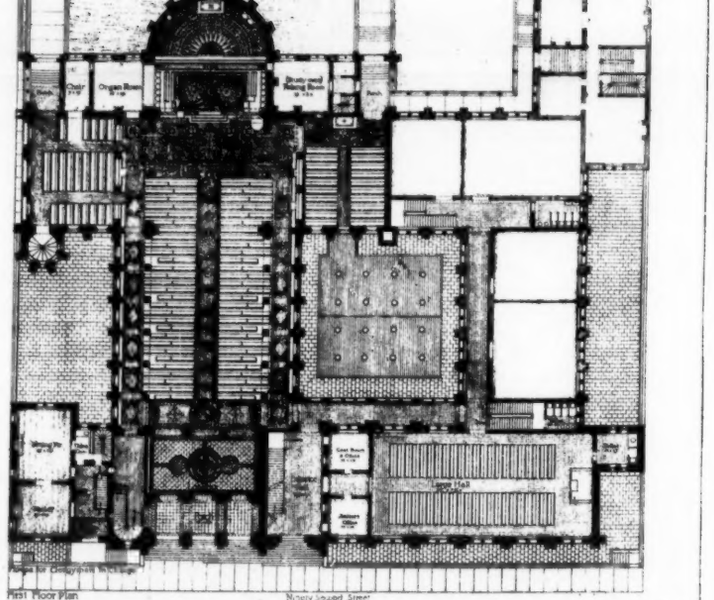


Section through A.B.

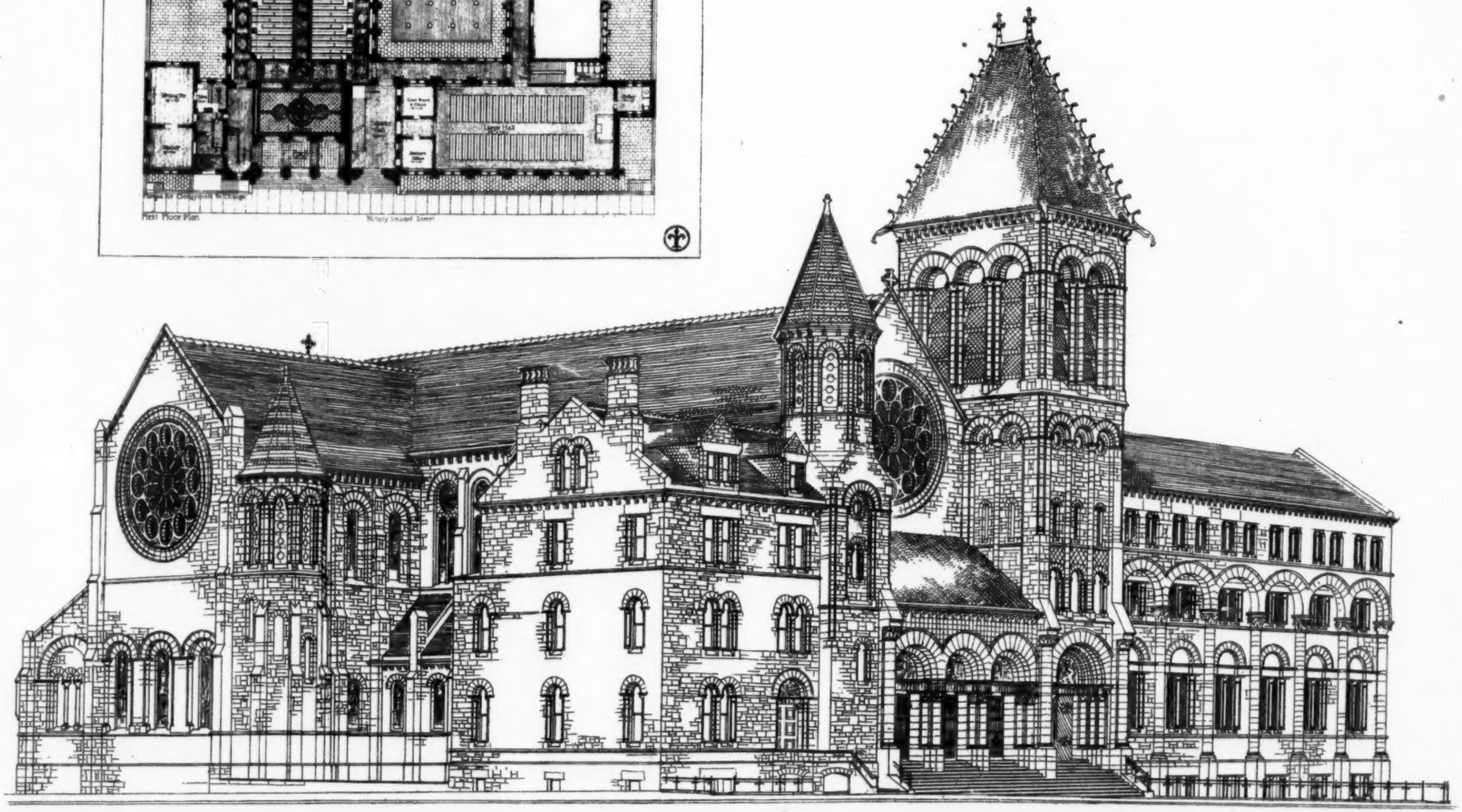


COMPETIVE DESIGN
FOR CHURCH,
CLERGY HOUSE AND SCHOOLS.
FOR
TRINITY CORPORATION, NEW YORK, N.Y.
R.M. HUNT, ARCH'T.

R. M. HUNT, ARCH'T.



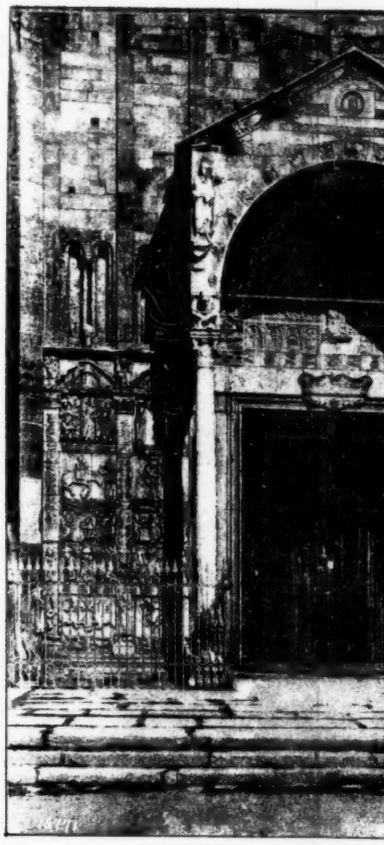
First Floor Plan



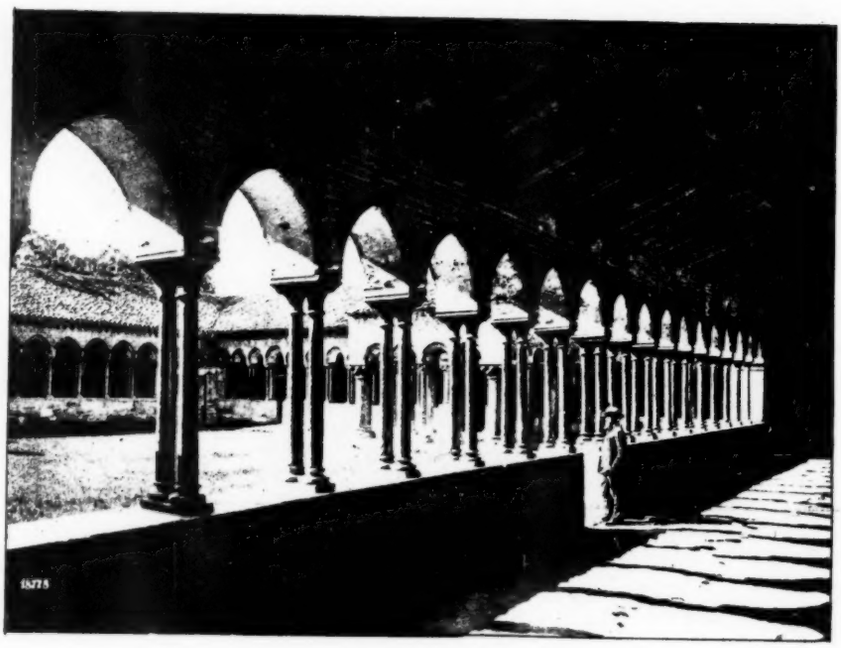
Heliotype Printing Co. Boston.

COPYRIGHT 1889 BY TICKNOR &

·ST·ZENO·



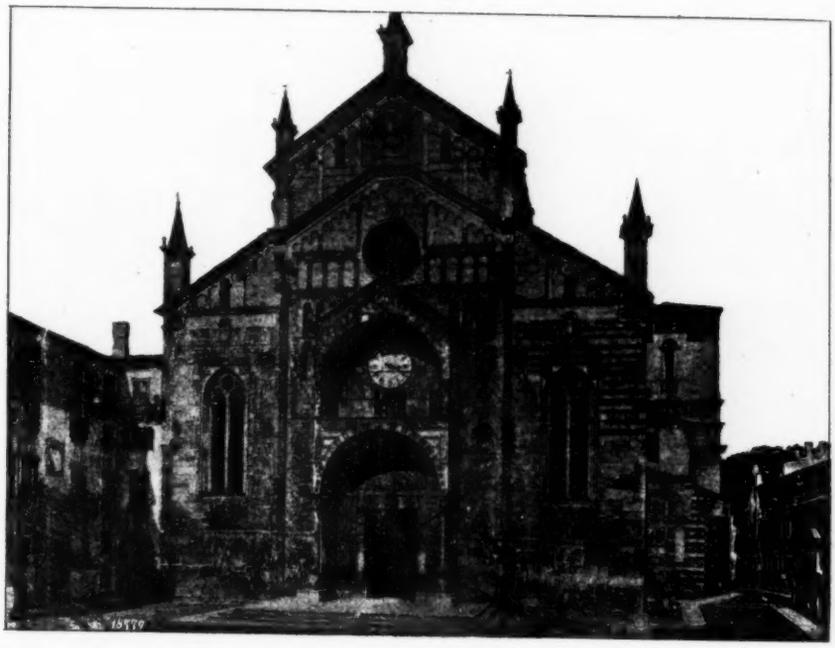
·PORCH OF ST.



·CLOISTER OF ST·ZENO·

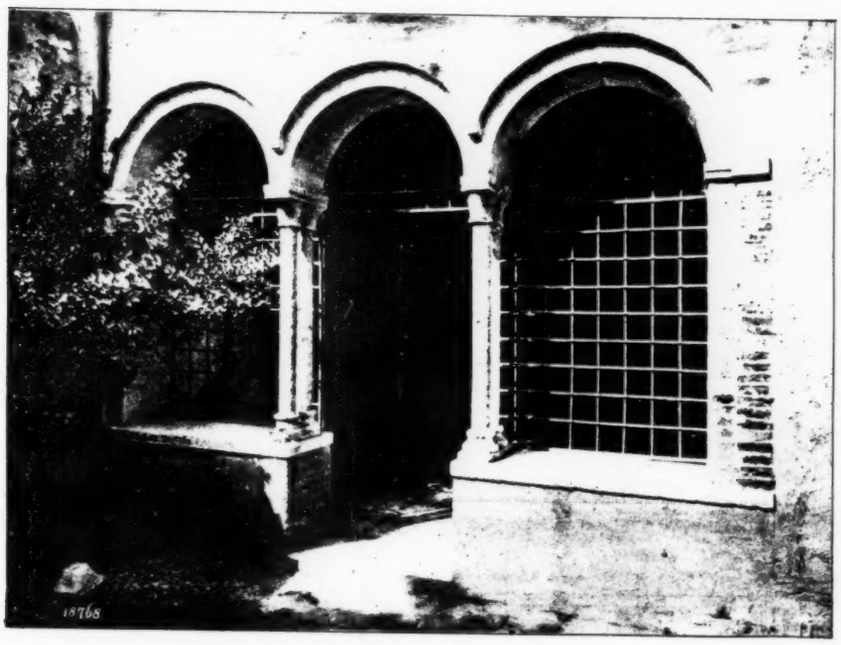
·VIEWS IN VERON

1889 BY TICKNOR & Co



·THE CATHEDRAL·

OF ST. ZENO·



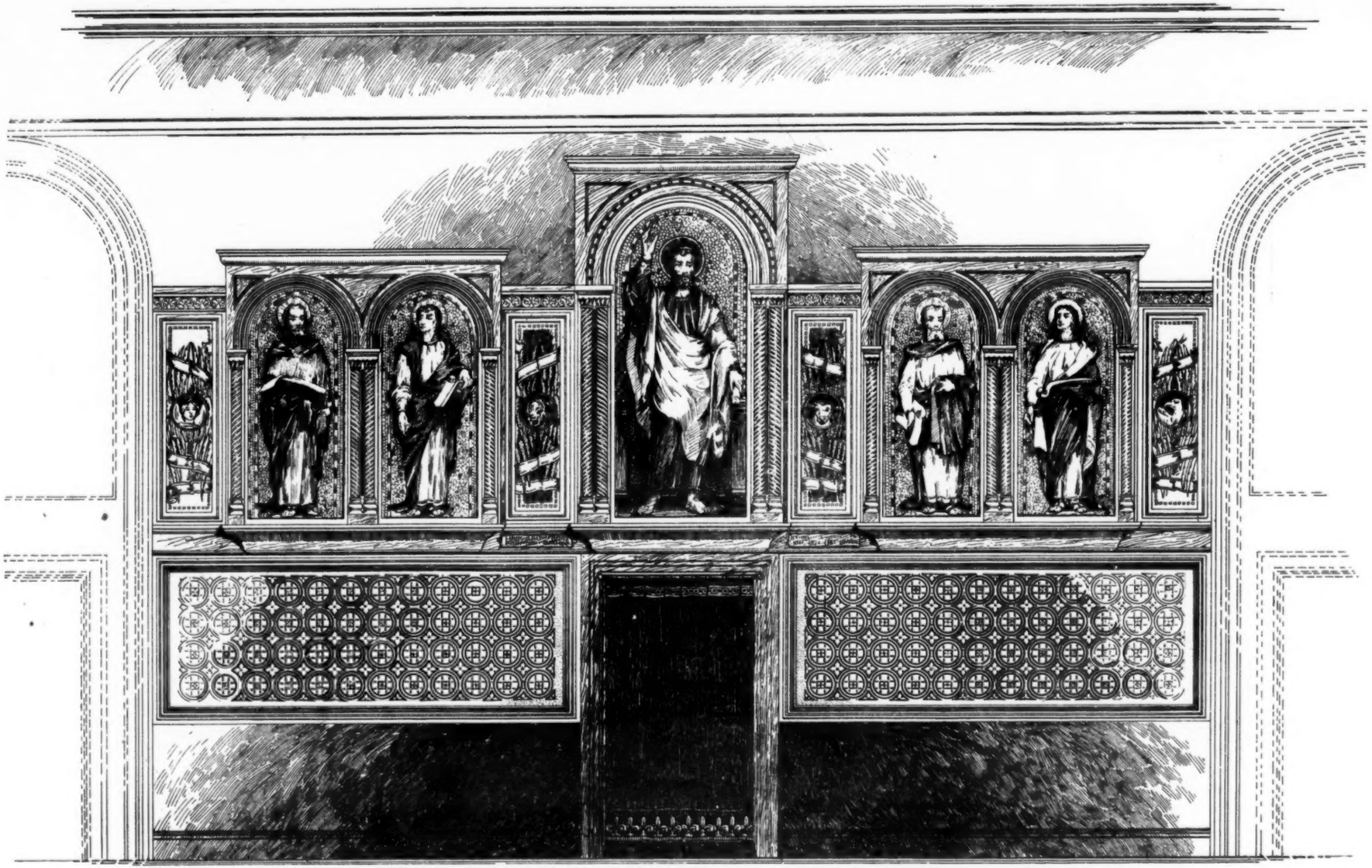
·JULIET'S TOMB·

Heliotype Printing Co. Boston.

ERONA : ITALY·

No. 700. American Architect and Building News, May 25 1889.

COPYRIGHT 1889 BY TICKNOR & CO



"KING MEMORIAL" DECORATION · SAINT PAUL'S CHURCH AUGUSTA GA · F·S·LAMB·NY·

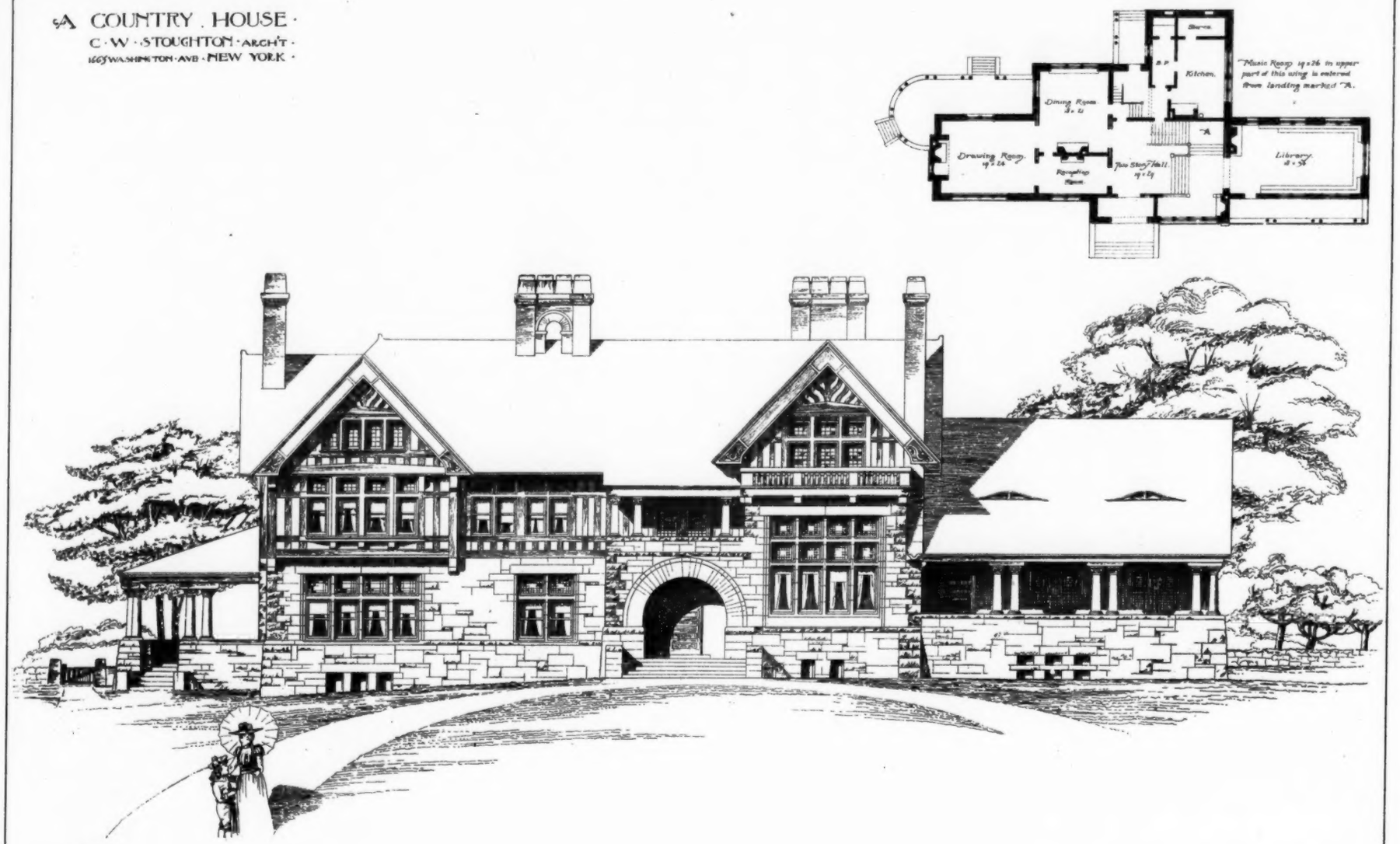
Heliotype Printing Co Boston

AMERICAN ARCHITECT AND BUILDING NEWS, MAY 25 1889. No. 700.

COPYRIGHT 1889 BY TICKNOR & CO

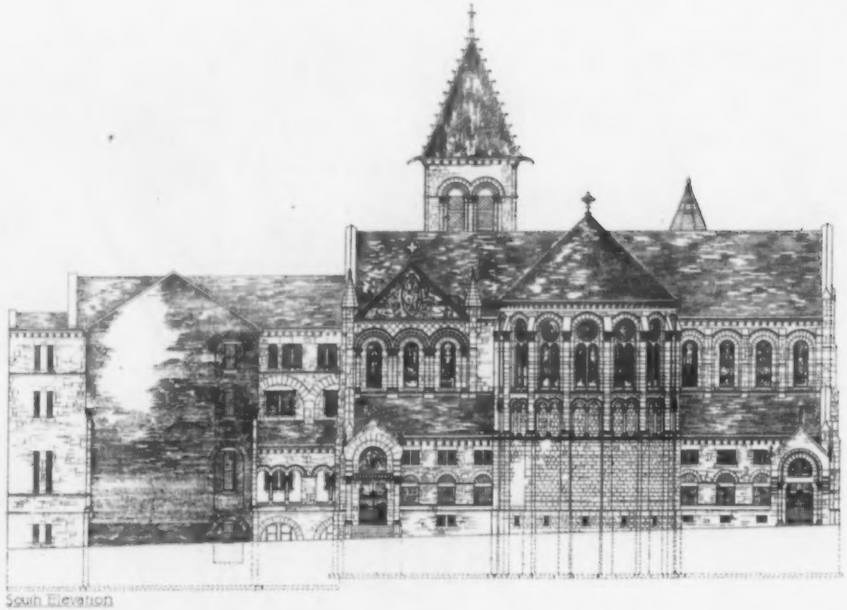
A COUNTRY HOUSE

C. W. STOUGHTON, ARCH'T.
166 WASHINGTON AVE. NEW YORK.

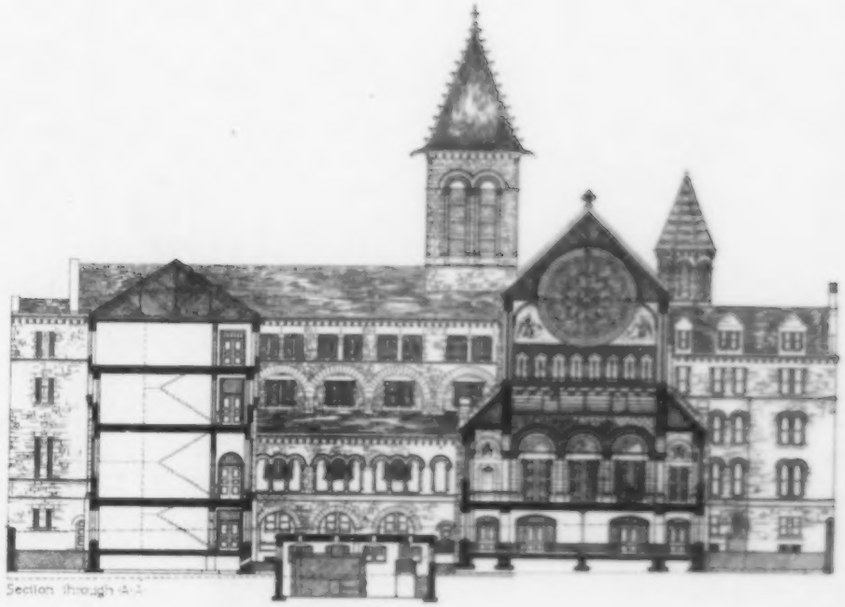

Stores.
B.P.
Kitchen.
"Music Room 19 x 26 in upper part of this wing is entered from landing marked "A."
Dining Room 15 x 17
"A"
Drawing Room 19 x 24
Reception Room
Two Story Hall 19 x 29
Library 18 x 24

Heliotype Printing Co. Boston.

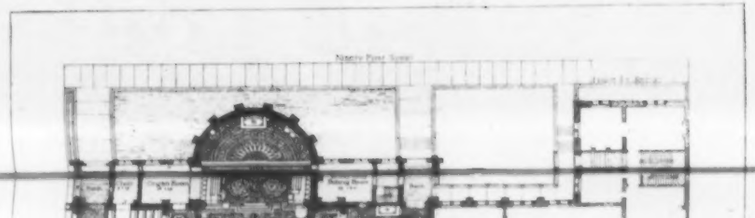
COPYRIGHT, 1889, BY TICKNOR & CO.



South Elevation



Section through A-B



COMPETITIVE DESIGN
FOR CHURCH,
CLERGY HOUSE AND SCHOOLS
FOR
TRINITY CORPORATION, NEW YORK, N.Y.
R. M. HUNT, ARCH'T